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DIAGNOSIS AND TREATMENT OF OCCUPATIONAL METAL POISONING

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The rapid development of American technology during and following the last war has not only taxed the skills of the scientist and the engineer but has also created new problems for the physician. One has only to think of the preventive, diagnostic and therapeutic concepts which the field of artificial radioactivity has created to realize how complex the practice of medicine has become and will continue. These new problems are not only the province of the radiation specialist and industrial hygienist; the general practitioner too must be alerted to the changes brought about by the use of new substances and processes in industry, since they are responsible for a changing picture of disease and illness among the working population.

Of importance to the general practitioner are the problems of occupational metal poisoning. The introduction of many new alloys and industrial processes has created environmental conditions wherein workers are often subjected to the dusts and fumes of toxic metals and the mists or gases of metallic compounds. Rare metals which a few years ago were laboratory curiosities have suddenly assumed important roles in industry. As a result, new disease entities are being encountered; for example, the pathologic manifestations resulting from exposure to beryllium, a metal almost unknown in industry as recently as ten years ago, and in addition exposures to old offenders are revealed in unexpected form.

The general practitioner may ask: "But why does this concern us? Are not these the problems of the industrial hygienist or of the plant physician?" The industrial diseases do not, as a rule, stand out as distinct entities which are immediately referred to the specialist; more often they first come to the attention of the family physician as an indefinite acute or chronic complaint, which, unless the occupational exposure is carefully evaluated, results in diagnosis and treatment as a nonoccupational illness. In their ability to affect many organ systems and to imitate other diseases, the industrial illnesses take second place to none, not even syphilis. Many a worker has been subjected to a laparotomy for suspected appendicitis when he was actually suffering from lead poisoning of obscure occupational origin or treated with penicillin for bacterial pneumonia when he was really the victim of exposure to cadium fumes.

The first problem confronting the general practitioner is, therefore, one of diagnosis.

THE DIAGNOSIS OF THE OCCUPATIONAL DISEASE

How does one arrive at a diagnosis of the occupational disease? What does one look for, and how is the occupational disease differentiated from the nonindustrial one?

It would not be an uninteresting task to write a lengthy dissertation on the mental steps involved in the making of a medical diagnosis. Time does not permit such a pleasant diversion. Suffice it to say that the exposure of large numbers of industrial workers to the special conditions under which they work and to toxic substances with which they come in contact makes it essential that a careful and complete occupational history be taken and that the physician possess a knowledge of the toxic effects of the substances to which workers are exposed.

The Occupational History.—The importance of taking a complete occupational history cannot be overstressed. It is necessary to know not only what the patient's job is but also specifically what materials he handles, what processes he performs on the materials and what his working environment is. When a man states that he is a lead burner, a diagnosis of lead poisoning may become obvious, but when he says that he is a furnace tender in a brass foundry, it may require considerable detailed questioning to elicit a history of a no less significant exposure to lead fumes. Unfortunately, often the worker himself may not be aware of the nature of the materials which he is handling; the furnace tender may be totally oblivious of the high percentage of lead in the brass he is handling or of the smaller amounts of arsenic, beryllium or selenium which may be present.

The occupational history, therefore, should include a complete knowledge not only of the job but also of the materials handled in the plant by the worker and by other closely associated workers. Not only is it necessary to obtain this information for his current job, but all his previous positions of employment should be reviewed in order to evaluate the cumulative effects of exposure in the past. Frequently, because of the lack of detailed knowledge on the part of the worker, the physician may have to extend his inquiries to the plant itself. In many instances, it may be possible to obtain the necessary information from the plant physician or the safety engineer. In others, an investigation on the site may be indicated. Often the state or local division of industrial hygiene may be of service in this respect.

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This may sound formidable, but in most instances the taking of the occupational history may be done rather simply by noting, in addition to the usual personal information, the following: name of company, process, job, materials handled and date of beginning and ending of employment. The history should start with the present job and work backward chronologically, if possible, ending with the first employment of the patient.

It is of fundamental importance that the physician know, or at least be familiar with, the signs or symptoms of the commoner occupational diseases. Without such knowledge, it is impossible for the practitioner to tie together in his mind the present complaint of the patient and the causal agent, the industrial exposure.

For this reason, I should like to summarize briefly the more or less common metallic exposures which may be associated with various occupations and the systems affected by each of these metals. It is not to be hoped that this brief paper can fully acquaint physicians with all the hazards and their signs and symptoms, but I would at least like to give an impression of the broad scope of the field and of the variety of aspects which the industrial diseases may present.

HAZARDOUS METALLIC EXPOSURES

Foremost among the hazardous metallic exposures are those to which smelters, refiners and workers in founderies are subject. Many of these hazards are immediately apparent, as, for instance, in the smelting and refining of lead, mercury or beryllium, but often the really dangerous metal may be present only as an impurity. Copper, for example, is considered a nontoxic metal, but many of its ores contain sufficient arsenic to present a real hazard to workers handling them. The addition of lead, and more recently beryllium and selenium, to brass and bronze in order to achieve special properties may, in addition, create a real danger. Similarly, manganese, chromium, selenium and beryllium have all been used in the manufacture of special alloy steels. The exposure may occur not only in the process of melting and pouring, when the toxic metals are liberated as fumes, but also from sawing or grinding off gates and risers, tumbling, cutting up ingots and handling scrap, all of which may create toxic dusts. In the course of refining some of the metals, soluble salts may be formed as an intermediate step, with the dissemination of dusts when dry and mists when in solution.

These products of the mills and foundries then undergo a variety of operations. They may be machined, ground or polished, yielding dusts in the process. Surfaces may be plated with chromium or cadmium, with the production of a hazard from the metallic mists. The increased use of welding has created a fume hazard in many shops, not only from the toxic metals in many of the alloys but also from metals which have been plated, particularly with cadmium. Riveting, welding and acetylene torch cutting of structural steel which has been painted with red lead may liberate lead fumes. Soldering and lead burning often expose a worker to lead and antimony.

Toxic exposures to metals occur in many other occupations in which the association is more devious. The incidence of lead colic among painters is well known, but the fact that antimony, mercury, arsenic, chromium and selenium are also used in the preparation of various pigments and may be a hazard to the manufacturers of such paints is often much less obvious. The lead and antimony in type metal create a danger in many branches of the printing industry, especially in casting operations on a large scale. Lead, antimony, arsenic and selenium are common ingredients of ceramic glazes, and recently beryllium oxide has found use as a ceramic in instances in which high-melting and heat-conducting characteristics are essential. The use of lead salts in the formulas of special glasses is often overlooked as an industrial hazard because of the preponderant exposure to silica dusts. Mercury is finding increasing use in all types of precision instruments and electrical equipment, including many types of switches, electronic tubes and lamps, and in paints and insecticides. More recently there is the serious hazard presented by the beryllium salts used as phosphors in the manufacture of fluorescent lamps, neon signs and cathode ray tubes.

Since the two following articles will deal with the problem of lead at some length, I will not discuss it here other than to mention that lead may be responsible for a multiplicity of general, gastrointestinal and neurologic disorders, ranging from fatigue and anemia to colic and encephalitis.

Arsenic.—Arsenic may cause either local or systemic manifestations. The local ones consist of cutaneous manifestations of various types, such as dermatitis, eczema, ulcers, keratosis, scleroderma and bronzing. Frequently, the eyelids and mucous membranes may be affected. If not properly treated, the lesions may undergo carcinomatous degeneration. Frequently, arsenic which is absorbed into the body is excreted by the sweat glands, so that lesions of the skin develop in moist areas, such as the scrotum or axilla, as well as on exposed surfaces. Dryness of the mouth and throat and hoarseness may result. Systemically, the metal causes trophic changes in the hair and nails (because of its affinity for sulphur), neuralgia and multiple neuritis, with slight motor paralysis, gastric symptoms and anemia. Arsine or hydrogen arsinide, which is a gas often accidentally liberated by the contact of arsenic with an acid, has a rapid and violent hemolytic effect and may cause severe anemia with jaundice and hemoglobinuria. Both acute and chronic cases of exposure can usually be confirmed by the presence of arsenic in the urine and delayed chronic cases by analysis of the hair and nails.

Cadmium.—Cadmium produces severe systemic reactions, but since the primary industrial exposure is by the inhalation of fumes and dusts most cases usually involve the respiratory tract predominantly. It first causes a dry or sore throat, followed by headache and dizziness. Subsequently, severe constricting pain in the chest and dyspnea develop, secondary to acute pulmonary inflammation and edema with pleurisy. The mortality is high, but recovery, when it occurs, is complete. Cloudy swelling of the liver and spleen have been noted at autopsy. When ingested, the metal causes severe epigastric distress and vomiting.

Beryllium.—The addition of beryllium to the list of toxic industrial metals has been so recent that there is still some confusion in the clinical picture. Locally, it may cause urticaria, which progresses to papular and vesicular dermatitis and sometimes to ulceration. Particles embedded under the skin produce granulomatous lesions or indolent ulcers. The most important effects, however, are on the respiratory tract. The more soluble forms produce an irritation varying from mild pharyngitis to severe bronchitis and pneumonitis

with pulmonary edema. These usually appear a few days or weeks after exposure, and unless death from acute pulmonary disease supervenes they resolve completely in one to two months. The insoluble salts appear to cause a chronic pulmonary granulomatosis, characterized by diffuse thickening of the alveolar walls, monocytic infiltration and unit lesions consisting of aggregations of histiocytes which undergo hyaline degeneration and containing the Langhans type of giant cells and inclusion bodies. Roentgenologic findings consist of a fine soft granularity in the early cases, which progresses to diffuse reticular patterns and then to uniformly distributed nodules 1 to 5 mm. in diameter in the advanced stage of the disease. This form of the disease often does not show up until years after the initial exposure and sometimes several years after cessation of contact with the toxic agent. There results a marked diminution of respiratory reserve, with high mortality and almost invariably permanent disability. Granulomas are also occasionally seen subcutaneously and in the liver. More recently, a form of the disease falling between the acute and chronic types, with a longer latent period and a longer period of convalescence but no permanent pulmonary changes, has been reported due to the inhalation of fumes and dust of the pure metal and oxide.

Mercury.—Mercury, like lead, is a metal which is principally absorbed through the respiratory tract but which exerts its toxic effects on several organ systems. Primarily, it is a poison which affects the central nervous system. It produces an intention tremor similar to that seen in paralysis agitans. This may affect the hands, limbs, head, lips, tongue or jaw, either unilaterally or bilaterally. The paralysis is readily demonstrated by the worker's handwriting. In addition, various psychic disturbances, such as unrest, irritability, depression and a loss of concentrating power and self confidence, may be present. Occasionally, generalized weakness, pains in the chest and cramps in the leg muscles may develop. Nephrosis or nephritis, with considerable albuminuria, is a frequent, and sometimes only, evidence of intoxication. Gastrointestinal disturbances, such as nausea, diarrhea or constipation, vomiting and stomatitis, sometimes occur, particularly in the presence of poor oral hygiene. Diagnosis is sometimes aided by a determination of the amount of mercury in the urine, but there is no definite relationship between the amount found and the degree of poisoning.

Manganese.—The effects of manganese poisoning are limited almost exclusively to the central nervous system. There is a disturbance of gait, with stiffness of the legs and a tendency to drag the feet, which is characteristic and which makes it extremely difficult for the persons affected to walk backward or up an inclined surface. Masklike facies, increased fatigability and sleepiness have also been noted. The effects are usually permanent except when the exposure has been brief. Degenerative changes in the basal ganglions have been found at autopsy. Other effects include neutropenia, occasional mild hemoglobinemia and a slight lowering of the blood calcium content. Determination of manganese in the urine is useful in demonstrating a past or present exposure, since the metal is stored in the lungs and slowly excreted by the kidneys, but the amount has no relationship to the degree of intoxication.

Chromium.—The toxic effects of chromium are mainly manifested by chromic acid and its salts. The most common is the development of indolent ulcers on the skin or the mucous membranes, particularly on the dorsum of the fingers, hands or arms, the nasal mucosa or the eyelids. They are deep, with thickened rounded edges, and are relatively painless, with little evidence of inflammation. Those in the nose frequently result in perforation of the septum. Less common manifestations are allergic reactions, such as dermatitis and asthma. Recently, chromium has been indicted as an etiologic agent in cancer of the lung, particularly among those engaged in mining and processing of chromate ores.

Selenium.—Selenium is one of the lesser known metals whose toxic properties have not yet been adequately evaluated. It appears to cause respiratory irritation, with cough and pulmonary edema, gastrointestinal symptoms including nausea, vomiting and abdominal cramps and disturbances of the central nervous system such as convulsions and loss of reflexes. There is some evidence that chronic exposure may be an etiologic factor in the occurrence of tooth decay, arthritis and disease of the liver. Absorption of selenium can be readily demonstrated by its presence in the urine and by a garlic odor of the breath.

The oxide fumes of certain metals, principally zinc but also mercury, tin and copper, are known to produce a physiologic response known as metal fume fever. It occurs only with fumes from such operations as casting or welding and cannot be demonstrated with dusts of the metals or their oxides. The symptoms resemble those of influenza, with chills, fever, malaise, generalized aches, dry throat, nonproductive cough and sometimes nausea and vomiting. Other than leukocytosis, there are no pathologic changes, and no chronic effects or sequelae have ever been noted. The condition clears rapidly after removal from exposure.

Tellurium, thallium and vanadium are believed to have effects similar to those of selenium, with an additional depilatory effect ascribed to thallium, but, industrially, few exposures have been described as yet. Aluminum and magnesium are considered toxicologically inert, although when metal chips become lodged under the skin they produce local subcutaneous emphysema and necrosis from the liberation of hydrogen by reaction with the body fluids. Iron may produce a condition known as siderosis because of the deposition of dusts or fumes in the lungs, but this is considered an inert form of pneumonoconiosis which does not cause disability. Many types of disease have been attributed to copper in the past, but almost all have since been shown to be the result of handling the accompanying lead or arsenic, either in alloy form or as a contaminant, and no industrial hazards from pure copper other than metal fume fever have ever been proved. Silver, even in nonorganic combination, has been shown to cause argyrosis when inhaled or ingested, but the occurrence of industrial exposures has been relatively rare.

THE TREATMENT OF THE METALLIC POISONS

With the diagnosis of poisoning by a toxic metal established, what is there to offer in the way of treatment? First and foremost, there must be insistence on complete removal from exposure. All the toxic metals, other than those producing fume fever, are cumulative in the body, and a mild intoxication, which on the basis of symptoms would not prevent a worker from continuing on the job, might readily become serious if further exposure is continued. When it is possible to transfer the employee to an exposure-free

job, this might be considered, but care must be taken to insure that this is not work at a lower level of exposure which would be harmless only to someone who had not accumulated toxic amounts of the metal. Once the affected person is removed from exposure, most of the conditions will gradually clear up, as the body slowly detoxifies itself by the normal avenues of excretion. When irreversible changes have taken place, such as degeneration of nervous tissue or pulmonary fibrosis, the worker may not show improvement with removal from exposure, but at least further deterioration may be prevented.

Other measures of importance in the general treatment of toxic metal poisoning are those which promote recovery and aid in the elimination of the substances. Adequate rest and a nutritious diet are essential. When the symptoms are severe enough, bed rest is frequently indicated. The diet should be supplemented by vitamins, if necessary. Symptomatic treatment, such as sedatives for cough or pain, is always in order.

Specifically, there are a few drugs in the physician's armamentarium which are of definite or possible value in the case of certain metals. I will not enter into a discussion here of the various types of treatment advocated in lead poisoning, as this will be covered in detail by one of the later speakers. When respiratory embarrassment occurs, as in the presence of pulmonary edema from acute beryllium, cadmium or selenium intoxication or of the alveolar pathologic changes caused by chronic beryllium poisoning, oxygen will often be helpful in tiding the patient over the most severe phases of the disease. Because of the low blood calcium content demonstrated in cases of manganese poisoning, large oral doses of its salts have been recommended; intramuscular injections of liver extract are also claimed to be beneficial in this disease. Sodium thiosulfate given intravenously has been used with beneficial results in both manganese poisoning and mercury poisoning. The nervous disorders of the latter have been helped by the use of drugs of the atropine group, notably scopolamine or stramonium, and, more recently, by administration of amphetamine sulfate. Local cutaneous reactions are usually best treated palliatively. Chrome ulcers will heal more readily if the salts in them are reduced: scrubbing with sodium hyposulfite solution or its application in the form of wet dressings will frequently accomplish healing. Débridement or complete excision may occasionally be necessary; this treatment is always indicated for the subcutaneous lesions produced by beryllium or the other light metals.

During the last war, British scientists developed 2,3-dimercaptopropanol, more familiarly known as BAL, as an antidote for the toxic effects of arsenic compounds, at that time feared principally as war gases, such as lewisite. This compound acts apparently by the great attraction of its sulfhydryl radicals for arsenic, which would otherwise combine with the sulfur-containing molecules of the body tissues and destroy their activity. It has proved effective in the treatment of industrial arsenic poisoning, both for the systemic effects when given intramuscularly and for the skin and eye reactions when applied locally. Some side reactions from its use have been noted, but they are rarely severe enough to force discontinuance when the dosage is carefully controlled. It has also been shown to be effective in the treatment of acute mercury poisoning.

In conclusion, then, the toxic metals constitute an increasing industrial hazard because of the many new uses to which metals are being put. Prompt recognition of the industrial origin of the many obscure signs and symptoms, referable to almost any organ system of the body, is essential if the disease is to be diagnosed before irreversible changes have taken place. The principal aids to proper diagnosis are a good occupational history, with a thorough investigation of the materials to which the worker has been exposed, and an adequate knowledge by the physician of the toxicology of those materials. Once the diagnosis has been established, therapy should be directed to removal of the patient from any further contact with the toxic substance, promotion of its elimination through natural channels, rest and general supportive and palliative therapy. A few specific substances have been shown to be effective for certain metals, notably BAL in the treatment of arsenic poisoning and acute mercury poisoning. But the best control of toxic metal poisoning lies in the prevention of excessive exposures by industrial hygiene for which the plant physician, the industrial hygienist and the safety engineer must assume some responsibility.

DIFFERENTIAL DIAGNOSIS OF LEAD POISONING

Accepted Laboratory Criteria

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Twenty-three years ago, as an assistant resident in medicine, my experience with lead poisoning began. I was called on to diagnose and treat lead colic, caused by the inhalation of lead dust in the manufacture of storage batteries, in a small group of patients. Fortunately for them, the monograph on lead by Aub and his associates had just been published.[1] Using his clinical method of study and his uniformly effective treatment with intravenous injections of calcium, I was able to return 6 of the men rapidly to their work.[2] Since then, I have limited my practice to internal medicine, and have also had the opportunity to study several hundred other lead workers, subject to nearly every known type and intensity of industrial exposure to lead. For eighteen years, at the time of this report, I have been responsible for the health of 80 to 100 lead workers in the storage battery industry. In this period, there has never been a time when some of the men have not had a lead line, indicating considerable absorption of lead.

In spite of increasing attention to mechanical means for the prevention of absorption of lead, occasions have arisen when heavy exposure has been temporarily unavoidable. These have been due to the element of human inability to follow suggestions, or have occurred when, during installation, new machines were temporarily not covered with protective devices.

When I first took over the responsibility for the health of this group, there was an incidence of disabling lead poisoning of 20 men per hundred each year.[3] In the past eleven years, I have had no cases of

Read before the joint meeting of the Section on Preventive and Industrial Medicine and Public Health and the Section on the General Practice of Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Aub, J. C.; Fairhall, L. T.; Minot, A. S., and Reznikoff, P.: Lead Poisoning, Medicine **4**:1-250 (Feb.-May) 1925.

2. Belknap, E. L.: Lead Poisoning; The Diagnosis and Treatment of Its Most Common Toxic Episodes, Lead Colic, Wisconsin M. J. **28**:346-350 (Aug.) 1929.

3. Belknap, E. L.: Control of Lead Poisoning in the Worker, J. A. M. A. **104**:203-210 (Jan. 19) 1935.

disability due to lead intoxication. Now, after twenty-three years, I am still depending primarily on Aub's clinical diagnostic picture and plan of treatment, coupled with physical and laboratory examinations, performed periodically every two to four weeks. A somewhat similar, and very excellent, plan for an individual screening record for lead workers was recently reported by Silson, of the Medical Unit, Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor.[4]

CLINICAL DIAGNOSIS

It is my conviction that the diagnosis of lead intoxication, the commonest industrial poisoning, is primarily a clinical problem. It is certainly one that is first met by the general practitioner, with increasing frequency, in our modern chemical industry. He is the man to whom the patient turns first. Can the physician in general practice, however, make a satisfactory diagnosis? It is my opinion that he can make the correct diagnosis as to the presence or absence of lead poisoning in 90 per cent of the cases. He must use the skills available to every physician, namely, a detailed history, careful physical examination and observation for lead line and wrist drop, together with studies of the blood, especially the determination of hemoglobin and the increase in stippled cells. First, he should study up on the subject, because most medical schools give no practical instruction in occupational medicine. Second, he can be quickly trained to take a good occupational history as well as a complete general history. He should be able to conduct a thorough physical examination, including a search for a lead line, and to test for true paralysis on extension of the wrist. Every medical student is now instructed in how to stain blood smears and make stippled cell counts or, at least,

Fig. 1.—In firsthand inspection of the place of work, correlated with the finding of the lead line and stippled cells in the worker, the physician can recognize danger in an occupational exposure. Frequently, he can recommend protective engineering devices which will keep the worker healthy. Note the perforated work tables, with downdraft suction, and slotted floor mats to help control the lead dust at its source.

trained to evaluate reports of such studies when received from a laboratory.

Distinction Between Lead Absorption and Lead Intoxication.—The physician must first have clearly in mind the distinction between lead absorption and lead intoxication. Lead absorption means absorption of lead into the system by inhalation or by ingestion. This lead absorption is shown as well by the determination of a lead line and a few stippled cells as it is by quantitative determination of lead in the urine and blood, and the process is much simpler.

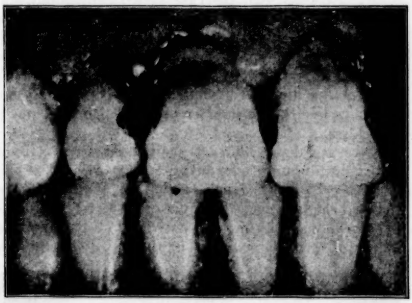

Fig. 2.—Under a hand lens the lead line of blue-black lead sulfide, actually deposited in the gums immediately opposite to the teeth, appears as a clear row of dots or vertical streaks. The worker had continuous heavy exposure to lead for one month before appearance of the lead line as 3 plus (definite dotting opposite 3 teeth).

Lead intoxication, or true lead poisoning, is present when the patient shows definite evidence of illness with disability, due to one of three main types of lead intoxication. These are lead colic, the commonest type, lead palsy and lead encephalopathy, much rarer and more serious types of lead poisoning.

Let us now consider the steps with which the practicing physician can make a diagnosis of lead poisoning. If possible, he should analyze at firsthand the probable exposure of the worker, in a personal tour of his place of work, just as Ramazzini advised two hundred and fifty years ago. The alert doctor of medicine does not require an engineering degree to see the advantage of downdraft, perforated work tables and slotted floor mats in helping to control lead dust at its source (fig. 1). If the physician studies the work place, as well as the worker, he may make up his mind from direct observation whether the occupational conditions contributed to the lead absorption that may be present.

Lead Line.—The simplest way of proving lead absorption (not lead poisoning) in the individual patient is to demonstrate a true lead line of the gums. The physician must be in a position to say more than "There is a suggestive lead line" or "The gums are somewhat bluish gray." Although I have heard some experts on lead poisoning complain that they were not sure they could recognize a lead line, it is not difficult to demonstrate its presence. With simple, though adequate, study under a small hand lens, using a head mirror and good illumination, the lead line appears as in figure 2. It is blue-black lead sulfide, actually deposited in the substance of the gums next to the teeth. Under the lens, the lead sulfide is seen as a clear row of dots or vertical streaks. A lead line is best seen in gums with acute pyorrhea, next to a carious tooth, behind the front teeth or next to the molars, where

4. Silson, J. E.: Medical Control of Lead Workers, New York State Dept. of Labor, Monthly Rev. 27:17-20 (May) 1948.

aeration is rarely good. One must be certain that the man is not receiving bismuth for syphilis, as a bismuth line is indistinguishable from a lead line. However, a lead line is not easily seen in mouths where there is good oral hygiene, without pyorrhea or decayed teeth.

LABORATORY EXAMINATIONS

Stippled Cells.—In the case of a clean mouth with no lead line, the diagnosis may depend chiefly on the presence of stippled cells. There are approximately 200 red blood cells per oil immersion field, so that in 50 such fields there are about 10,000 red cells. To arrive at the number of stippled cells per million, one multiplies by 100 the number of stippled cells found in 50 fields.

There are those who say that stippled cells are of no diagnostic importance because they are not specific for lead poisoning. I believe that no qualified expert in this field has ever said that they were specific or pathognomonic. Wintrobe stated the belief that the finding of any stippled cells in the blood of a normal

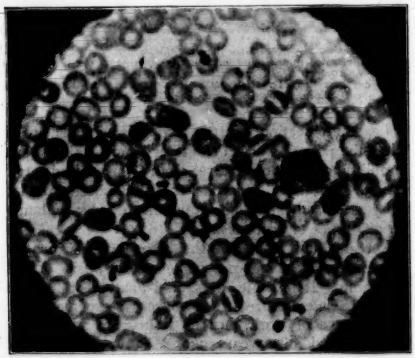

Fig. 3.—The worker showing these stippled cells had three months' heavy exposure to lead before the dangerous level of 20 stippled cells per fifty fields was noted. He had discarded his approved lead dust respirator frequently to smoke. Two weeks after he began to wear a respirator regularly, the number of stippled cells dropped below 20.

person is infrequent.[5] However, according to Machle,[6] there may be a few stippled cells in the normal person, as from 3 to 7 per 50 fields, the equivalent of about 300 to 700 per million red blood cells. It is well known that any condition which causes a strain on the bone marrow, such as severe secondary or primary anemia or a debilitating disease, such as cancer, leukemia, benzene poisoning or Hodgkin's disease, may eventually cause basophilia and production of stippled cells in the peripheral circulation, as was so well brought out by Johnstone.[7] The difference, however, is that in these conditions anemia appears in a pronounced form long before the stippled cells appear; in the case of frank lead intoxication, stippled cells may be seen long before the anemia appears. This appearance of stippled cells before anemia is, of itself a striking observation and almost diagnostic of lead intoxication. It is not new, as it was emphasized by Cabot in 1904.[8]

So frequent is the association of stippled cells with clinical lead poisoning that the committee on lead poisoning of the American Public Health Association, with Dr. Robert Kehoe as chairman, emphasized it in their report:

> The occurrence of stippling in active lead poisoning is so regular that the failure to find it when one makes use of adequate staining and examination of the blood, should create grave doubt that lead is the agent responsible for an intoxication that is under study.[9]

In the same report, the committee states:

> In a large proportion of cases of lead poisoning, a large increase in the number of stippled erythrocytes in the peripheral circulation occurs in coincidence with the onset of symptoms and perhaps immediately preceding the onset. This abrupt rise above the previous normal level ranges from seven hundred or eight hundred red cells per million up to 35,000 or 40,000 stippled cells per million.

This is the equivalent of a rise from a level of 7 stippled cells, per 50 oil immersion fields to that of approximately 350 per 50 fields.

Any physician who has had experience with clinical lead poisoning knows that the finding of more than 10 to 20 stippled cells per 50 fields in a patient without obvious anemia and with or without a lead line, in the face of known exposure to lead, puts the burden of proof on the examiner who would say that the symptoms were not those of lead poisoning. The characteristic abrupt rise in the number of stippled cells in conjunction with a significant clinical history is practically diagnostic of lead poisoning, according to most of the reports in the literature and the cases in my own experience.[10] Stippled cells, as well as the lead line, have been closely bound up with the clinical history in the diagnosis of lead poisoning for many years. The cells are not difficult to demonstrate, even with Wright's stain, with which every physician is familiar (fig. 3).

Recently, with the growth of more refined methods for study of the urine and blood, there has been a tendency to belittle the time-honored evidence of stippled cells, as well as that of the lead line.

Quantitative Values of Lead in Urine and Blood.—Exact quantitative technics for the determination of lead in the blood and urine are valuable for confirmation in studying the levels of lead absorption. However, they are time-consuming and liable to considerable error when attempted in the average laboratory.

As Fairhall said of the analysis of lead in the body fluids:

> When it is realized that the determination frequently revolves around a matter of millionths of a gram in 1,000 or 2,000 Gm. of fluid or substance and that the total amount of other inorganic constituents accompanying lead in such material may amount to 50 or 100 Gm., it is obvious that the separation and quantitative evaluation of these extremely minute amounts of lead is exceedingly difficult.[11]

5. Wintrobe, M. M.: Clinical Hematology, Philadelphia, Lea & Febiger, 1946.
6. Machle, W.: Clinical Significance of Hematologic Changes in Lead Absorption and Lead Poisoning, Occup. Med. **3**: 150-155 (Feb.) 1947.
7. Johnstone, R. T. Occupational Medicine and Industrial Hygiene, St. Louis, C. V. Mosby Company, 1948.
8. Cabot, R. C.: Clinical Examination of Blood, ed. 5, New York, William Wood & Company, 1904, p. 419.
9. Kehoe, R. A.: Report of Committee on Lead Poisoning on Occupational Lead Exposure and Lead Poisoning, New York, American Public Health Association, 1943.
10. Belknap, E. L.: Lead Poisoning: Criteria for Diagnosis, Indust. Med. **9**: 505-508 (Oct.) 1940.
11. Fairhall, L. T.: Analytic Methods in Diagnosis, Occup. Med. **3**: 13-19 (Jan.) 1947.

I know of no authority who has ever been able to make uncontested the statement that he can diagnose lead poisoning in an individual case from the finding of lead in the urine alone, even if there were 0.3 to 0.5 mg. per liter. He can only say, in such a case, that the person has an abnormal amount of lead in the urine and that this symptom is often seen in groups of workers with lead intoxication. As practicing physicians, we must never forget that the problem of the clinician is the problem of diagnosis of the individual condition of the individual patient. It is not group testing for abnormal levels of lead absorption.

The amounts of lead that may be present in the urine and blood in a so-called normal person, not known to be exposed to lead, are as follows: The upper levels are 0.08 mg. of lead per liter of urine and 0.01 to 0.06 mg. of lead per hundred grams of whole blood. The levels which are safe for an indefinite period in a worker exposed to lead are approximately 0.15 mg. of lead per liter of urine and 0.07 mg. of lead per hundred grams of whole blood. A knowledge of these levels is valuable in estimating safe exposures for groups of lead workers. Figures are available in detail in the report previously referred to:

> The upper limit of normal lead concentration in the urine approximates 0.08 mg. per liter sample and 0.12 mg. for spot samples of 100 cc. Lead in concentration below 0.15 mg. per liter has doubtful significance. Hazardous lead exposure usually induces lead excretion above this figure of 0.15 mg. and the large proportion of cases of lead poisoning examined during an episode of intoxication show urine concentration between 0.15 and 0.30 mg. per liter.[9]

The analysis of lead in the blood requires extremely painstaking and well qualified work by specialized technicians, as the probability of error, both in the collection of samples and in analysis, is very great.

The report continues:

> The normal lead concentrations in the blood range from 0.01 to 0.06 mg. per 100 Gm. of whole blood. . . . Results in excess of 0.07 mg. per 100 Gm. of whole blood are indicative of recent lead exposure, while results in excess of 0.10 mg. per 100 Gm. show that exposure has been considerable.
>
> Mean results of 0.05 mg. of lead per 100 Gm. of whole blood . . . are representative of safe conditions of exposure and are associated with mean urinary concentration of 0.08 mg. per liter with the upper limit of variability for urinary concentration at 0.15 mg. per liter so that the upper limits of safety for the concentration of lead in the blood lie somewhere between 0.05 and 0.07 mg. per 100 Gm. (Page 18.)
>
> In lead colic, the lead content of the blood and urine will be elevated, the concentration in the blood being in excess of 0.07 mg. per 100 Gm. of whole blood and that of the urine will be at least 0.12 mg. per liter (page 51).

In conclusion, Dr. Kehoe's committee stated: "The existence of lead poisoning in a given case is not demonstrated by lead analysis, either on the basis of lead found in the blood, urine or body as a whole." (Page 45.) In other words, no one symptom and no one laboratory observation is diagnostic of lead poisoning.

DIFFERENTIAL DIAGNOSIS

My concern in this paper, however, is not primarily in the determination of safe exposure for groups of lead workers. Certainly one high determination of lead in the blood or urine or the presence of a lead line does not prove anything more than high lead absorption. The differential diagnosis of lead poisoning in an individual case must really be based on wide experience in clinical medicine. The type which is present in about 90 per cent of the patients with clinical lead poisoning which the general practitioner will see and which, therefore, calls for greatest emphasis, is the gastrointestinal type. Hunter, of England, stated that these cases are ten times as frequent as the palsy cases, the second type of lead intoxication.[12] The third type, lead encephalopathy, is rarely seen in modern industry.

Even when confronted with a probable case of lead colic, the physician should systematically rule out other causes for abdominal pain, just as he does in his general practice when faced with the possibility of an acute abdomen. Though many patients have been needlessly operated on for acute appendicitis when the true underlying cause of symptoms was lead intoxication, the converse is just as likely. Unfortunately, the worker who has abdominal pain and is known to be exposed to lead is sometimes immediately treated for lead poisoning, even though he may have an acute abdomen. I have seen this done with fatal results. In any doubtful case of severe abdominal pain in a lead worker, prompt relief from pain with intravenous injection of calcium gluconate is practically diagnostic of lead colic. If calcium given intravenously does not relieve the abdominal colic promptly, one should question whether the colic is due to lead.

One must decide whether abdominal pain is due to acute appendicitis, a perforating peptic ulcer, acute pancreatitis or mesenteric thrombosis. Even an acute condition of the chest has to be considered in any diagnosis of an acute abdomen, so one has to rule out the possibility of pneumonia and acute coronary occlusion.

One practically never sees jaundice in a patient with lead colic unless it is in a far advanced, neglected case in which destruction of the blood has been unusually severe. Then the lead line and stippling of the cells are so pronounced that the true diagnosis of lead intoxication cannot be missed. Hematuria, a common sign with renal colic, is practically never seen in a case of lead intoxication.

In differentiating the violent pain that ensues on intestinal perforation, associated with a peptic ulcer, from the colic of lead poisoning, the diagnosis must rest on a minute history characteristic of ulcer and on the sudden onset of violent pain without letup. This onset is in contrast to the gradually increasing, rhythmic attacks of lead colic, usually associated with almost complete obstipation and with the rapid increase of stippled cells from 10 to 500 or 1,000 per 50 fields. The table emphasizes the following practical points: An increase in stippled cells usually precedes symptoms of lead colic, and the number rises abruptly with the actual onset of disability; the drop in hemoglobin usually occurs a week or two after there has been an increase of stippled cells; stippled cells and lead colic may be present without a lead line, if the teeth are in excellent condition. An acute infection

12. Hunter, D.: Industrial Toxicology, Quart. J. Med. **12**: 185-258 (Oct.) 1943.

may often be a precipitating factor in acute lead poisoning of the lead colic type.

The pain of acute intestinal obstruction almost exactly mimics the pain of lead colic. In both instances there is constipation, abdominal pain of a rhythmic type and, not uncommonly, vomiting. If there are no stippled cells, however, one must rule out lead colic as a cause of the disabling abdominal pain, even in a patient exposed to lead.

When a physician is called in a case of abdominal colic and learns that the patient is a lead worker, this does not necessarily simplify the problem of differential diagnosis. He meets here a greater challenge to his diagnostic acumen. He must be thoroughly familiar with the perplexing problem of the acute abdomen before he can accurately and safely diagnose acute lead intoxication.

One must remember, finally, that lead workers are just as likely as other persons to have episodes of mesenteric thrombosis, of the rare, acute pancreatitis or of the abdominal manifestations of coronary thrombosis.

Aside from the most common type of true lead intoxication, lead colic, from which the patient usually recovers without residual symptoms in three to six weeks, there do occur cases of true lead palsy, the much rarer, second type of true lead intoxication. As I stated in "Lead Poisoning: Criteria for Diagnosis," mentioned previously:

> They usually show an associated history of preceding neglected lead intoxication of the abdominal colic type, associated with typical lead constipation and characteristic increases in stippled cells. With the onset of the actual palsy, the stippled cell level may not be excessive and often not diagnostic of itself.[10]

Record of Lead Worker Unprotected by Respirator After Two Years of Intermittently Heavy Exposure (Belknap[3])

Date	10/22	11/4	11/18	12/3	12/17	12/28	12/29	12/30 Entered hospital	12/31	1/1	1/2	1/3	1/4	1/5 Discharged†
Duration of exposure, months over 2 years	11½	12	12½	13	13½	14	14	14	14	14	14	14	14	14¼
History														
Weakness	—	—	—	—	—	—	+	+	+	+	+	+	+	+
Drowsiness	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insomnia	—	—	—	—	—	—	+	+	+	+	+	—	—	—
Headache	—	—	—	—	+	Less	+	+	—	+	—	—	—	—
Vertigo	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bowel movements without catheterization	1x	1x	1x	1x	1x	6x	10x	—	—	—	5x	4x	2x	1x
Constipation	—	—	—	—	—	—	—	+	+	+	—	—	—	—
Diarrhea	—	—	—	—	—	+	+	—	—	—	+	+	—	—
Metallic taste	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anorexia	—	—	—	—	—	—	+	+	+	+	+	—	—	—
Nausea	—	—	—	—	—	—	—	—	—	+	+	—	—	—
Vomiting	—	—	—	—	—	—	—	—	—	+	+	—	—	—
Abdominal pain	—	—	—	—	—	—	—	+	+	+	+	—	—	—
Weight, pounds	154	155	155	158	162	162	..	..	..	..	..	..	..	..
Gauze respirator	—	—	—	—	—	—	—	..	..	..	..	..	..	..
Muscles														
Weakness	—	—	—	—	—	—	—	+	+	+	+	+	—	—
Tremor	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tingling	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cramps	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Joint pains	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute illness	—	—	—	—	Sinus	Throat	Aches	Colic	Less	Colic	Less	—	—	—
Physical Examination														
Temperature, F.	..	..	..	..	..	..	99	99.4	98.6	98.6	103.5	98.4	98.4	98.6
Pallor	0	0	0	0	—	—	—	←			Ashen			→
Lead line, number of teeth	0	0	0	0	0	0	0	0	2*	2	2	2	2	2
Right wrist extension	←							Normal						→
Left wrist extension	←							Normal						→
Blood pressure	←							120/75						→
Laboratory Examination														
Stippled cells per 50 fields	10	21	23	30	110	217	..	429	332	..	150	..	94	70
Hemoglobin, per cent (Sahli scale)	89	87	85	80	80	79	..	65	60	..	60	..	50	..
Red blood cells	..	..	..	..	..	..	..	4,100	4,320	..	3,980	..	4,230	..
White blood cells	..	..	..	..	..	..	..	9,650	12,250	..	11,050	..	13,300	..
Therapy					← After 12/22 10 Gm. calcium gluconate orally 4 times daily →			←		50 cc. 2% calcium chloride intravenously every 3 to 6 hr. →			← calcium gluconate orally →	
										← 1 ounce magnesium sulfate each morning →				

* A lead line did not appear previously because of excellent oral hygiene.
† The patient returned to work six weeks later.

It is to be remembered, moreover, that lead neuritis primarily affects the motor, rather than the sensory, nerves and that it involves the extensor muscles, rather than the flexor muscles. This is in contrast to ordinary peripheral neuritis of an infectious or alcoholic type, which is usually associated with violent pain and palsy of both extensor and flexor muscles. The healing period of lead neuritis, or palsy, may extend from two months to two or three years. Even then, any residual disability is rare.

The third type of lead intoxication manifests itself in the stupor or violent delirium of lead encephalopathy, or involve-

ment of the brain. These cases are in a class by themselves and may not show the warning of previous lead colic or stippled cell rise. Their history is a characteristic story of overwhelming lead exposure seen most dramatically in exposure to tetraethyl lead, with sudden onset of irritability followed in rapid succession by marked excitability, mania, coma, and frequently death. Less dramatic types [sometimes seen in children] are characterized by heavy lead exposure with headache, dizziness, confusion and somnolence as the predominant picture. Such cases, usually marked by convulsions at the onset, . . . are uncommon in modern industry, where we are concerned with adults. With the ordinary precautions now widely used against excessive lead absorption, lead encephalopathy has largely vanished from American industry. There is an interesting observation to be made here, that, even in this most intense type of lead intoxication, . . . providing the [adult] patient has survived the acute stage, after a healing period of disability of two months to two years, there may be no residual effects. In children, however, residual damage is not uncommon.[10]

Whether adult or child is involved, lead encephalopathy is the only type of lead intoxication that kills. However, all these types of lead poisoning are acute, and only these three acute types should be dignified with the term "lead poisoning."

SUMMARY

While I heartily agree with the great value of research in the specialized study of lead absorption, I believe that it is our responsibility also to point out to the general physician that he already has the skills to meet the emergency of diagnosing and treating acute lead poisoning in the individual patient.

In conjunction with the history and physical examination of the patient, including a careful search for a lead line, the study of the blood by determination of the stippled cell curve (usually seen to rise abruptly, in advance of a drop in hemoglobin) is in the majority of cases the deciding point in making a diagnosis of lead intoxication, or frank lead poisoning.

COMMENT

That I am not alone in my insistence on the preeminent importance of these simple clinical observations was shown in a letter I received recently from S. B. Scott, assistant medical officer of one of the largest British companies manufacturing storage batteries, whose 800 workers are exposed to lead absorption. He had written to this country inquiring as to the present status of methods for practical control of lead poisoning. In answer to the reply which I sent him, he states:

> I have been more interested to find that you place more reliance on the methods which we favor here, i. e., routine search for stippled cells and estimation of hemoglobin. Having studied your views, I feel that our present methods are much in agreement and that there is no good reason for changing them.[13]

Certainly, we should emphasize to the nonspecialized member of the American Medical Association, the man in general practice, that the workable technics in which he is already well trained are quite sufficient to make a satisfactory diagnosis of acute lead intoxication and that the differential diagnosis of lead poisoning depends, not on any one laboratory criterion, but primarily on the whole clinical picture.

13. Scott, S. B.: Personal communication to the author, May 4, 1948.

TREATMENT OF LEAD INTOXICATION

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The method of treating the acute phase of lead intoxication has been well established and its rational universally accepted. However, the type of treatment that should be instituted after the subsidence of the acute symptoms is a controversial issue. While the approved treatment of the acute stage will be reviewed, this paper will deal primarily with the theories versus practicability of storing and deleading.

It would seem obvious that the entire therapeutic regimen should be directed toward (1) overcoming the intestinal colic, (2) correcting the anemia, (3) making the patient symptom free with no disability and (4) returning the patient to a remunerative job as soon as possible.

The following procedures are prescribed for the acute stage:

1. Hospitalization or ambulatory, depending on symptoms
2. If hospitalized, bed rest or ambulatory, depending on colic
3. High calcium diet
4. Warm water bag or electric pad for abdominal discomfort
5. One half to 1 ounce (16 to 31 Gm.) magnesium sulfate every morning on arising
6. Antispasmotics, such as tincture belladonna, phenobarbital mixture, every four hours, or amprotropine phosphate (syntropan®) tablets or hydrochloride of diphenylacetyl diethylaminoethanol (trasentine hydrochloride®) and phenobarbital tablets for abdominal discomfort
7. Ten cubic centimeters of 20 per cent calcium gluconogaloctogluconate solution (neo-calglucon®) intravenously every four hours
8. No narcotics advised
9. Complete blood cell count and stippling determination, followed by red blood cell count and stipple cell counts taken every three days
10. Estimation of lead in urine (twenty-four hour specimen) and urinalysis

This routine therapy is predicated on the original contention of Aub [1] and his associates that the direction of the lead stream is similar to that of the calcium stream, that when calcium is being deposited in the bones, circulating lead is being deposited in the bones and that when calcium is being pulled from the bones, some stored lead is also liberated.

Deleading appears to be the method advocated by most authorities, but this does not tell the whole story, because it is unusual to find physicians who actually utilize this procedure: as a matter of fact, recently a questionnaire was sent to twelve actively practicing industrial physicians engaged in this work, and their answers showed that only one physician was using deleading, two physicians formerly used deleading, but had given it up, and the remaining nine had never utilized deleading in any shape or form.

METHODS OF DELEADING ADVOCATED

1. *High Calcium Diet.*—This method was claimed by Lederer and Bing [2] to be the optimum diet for deleading. Taeger [3] arrived at the same conclusion.

1. Aub, J. C.: The Biochemical Behavior of Lead in the Body, J. A. M. A. **104**: 87 (Jan. 12) 1935.
2. Lederer, L. G., and Bing, F. C.: Effect of Calcium and Phosphorus on Retention of Lead by Growing Organism, J. A. M. A. **114**: 2457 (June 22) 1940.
3. Taeger, H.: Calcium Therapy of Lead Poisoning, Klin. Wchnschr. **16**: 1613, 1937.

Schilling and Hopper [4] expressed the belief that the use of calcium did not induce superior calcification, but rather had the opposite effect. Gray and Greenfield [5] reported that prolonged high calcium diet and regimen was the best means of deleading. On the other hand, Litzner, Weyrauch and Barth [6] claimed that a high calcium diet reduces lead excretion.

TABLE 1.—*Age Factors*

Total Number Intoxication Cases	62
Age groups	
28 cases between 21-29 years	
22 cases between 30-39 years	
11 cases between 40-47 years	
1 case 54 years	
Average age, intoxication case (years)	31
Average exposure (weeks)	12
Average time lost from work (days)	23
Age of youngest patient (years)	21
Age of oldest patient (years)	54
Exposure of youngest case (weeks)	4
Exposure of oldest case (weeks)	8
Shortest exposure case (days)	12
Longest exposure case (days)	37

2. *High Phosphorus and High Vitamin Diet.*—Gray and Greenfield [5] found the use of an optimal calcium diet with a high phosphorus and high vitamin diet (vitamin D particularly) the best treatment in these cases. Gray,[7] interestingly enough, observed a few years previously that a low calcium and high phosphorus diet (ration 1:4) was ideal in deleading; on the other hand, Lederer and Bing [2] disagreed with this statement and expressed the opinion that the addition of phosphate has no beneficial effect.

3. *Low Calcium Diet.*—As stated previously, Gray [7] recommended a diet low in calcium.

TABLE 2.—*Hospital and Nonhospital Studies*

Total Number Cases 1939-1948	62
Hospital cases	35
Nonhospital cases	27
Hospital Cases	
Average age	33 years (21-54)
Average length of exposure	10 weeks (4-54)
Shortest hospital stay	5 days
Longest hospital stay	34 days
Average hospital stay	14 days
Average loss of time	31 days (7-55)
Nonhospital Cases	
Average age	30 years (21-47)
Average length of exposure	14 weeks (4-28)
Average loss of time	15 days (1-47)

4. *Ascorbic Acid Therapy.*—Holmes, Campbell and Amberg [8] observed much benefit from ascorbic acid therapy in cases of lead intoxication; others have had no success with this form of therapy.

5. *Other Substances.*—Ammonium chloride, potassium iodide (Belknap [9]), sodium bicarbonate, sodium citrate (Kety and Letonoff [10]), parathyroid hormone and 2,3-dimercaptopropanol (BAL) antilewisite have been used.

Do these procedures actually delead? Kehoe [11] stated, ". . . there are grave doubts whether or not the elimination of the toxic agent can be materially accelerated by artificial means" and further added, ". . . this elimination can only be accomplished spontaneously over a considerable length of time." Aub [1] and his associates concluded that complete deleading cannot be done. Oliver [12] and many others have confirmed this observation. It is most interesting that practically all the advocates of deleading admit that the procedure is dangerous and must be attempted only in specific circumstances. Johnstone [13] stated, ". . . this procedure (deleading) has been discarded due to the belief that lead is excreted from the body by normal physiologic processes."

It is admitted by its advocates that rapid deleading is to be avoided, and, therefore, it is advisable to immobilize the lead in the bony structure during the acute toxic episode. It is also stated that deleading is then advisable, since the liberation of this store of lead is an obvious factor in the onset of toxic lead

TABLE 3.—*Blood Studies*

Period of Greatest Changes in Counts and Smears—7-14 days after acute symptoms arise		
Period When Blood Cell Counts and Smears Return to Normal (according to whether or not hospitalized)		
Hospital cases		4½ months
Ambulatory cases		5 months
Period When Blood Cell Counts and Smears Return to Normal (according to age)		
Short exposure case group (below 10 weeks)		4.4 months
Long exposure case group (beyond 10 weeks)		4.3 months
Range of Red Blood Cells *		
Lowest count	(H)	2,980,000
	(A)	3,720,000
Highest count	(H)	4,150,000
	(H)	4,750,000
Average count	(H)	3,578,000
	(A)	4,034,000
Range of Hemoglobin Counts		
Lowest count	(H)	50%
	(A)	68%
Highest count	(H)	75%
	(A)	70%
Average count	(H)	65%
	(A)	71%
Range of Stipple Counts (per 30 fields)		
Lowest count	(H)	37
	(A)	30
Highest count	(H)	300
	(A)	134
Average count	(H)	118
	(A)	75

* (H), hospital cases; (A), ambulatory cases.

4. Schilling, H. D., and Hopper, K. B.: Calcium and Phosphorus Studies, Bull. Johns Hopkins Hosp. **58**: 196, 1946.
5. Gray, K., and Greenfield, I.: New Concepts in the Treatment of Lead Poisoning, New York State J. Med. **28**: 1313, 1938.
6. Litzner, S.; Weyrauch, F., and Barth, E.: Untersuchungen über Bleiausscheidung durch die Nieren und ihre Beeinflussung durch bestimmte Kostformen und Arzeimittel beim Menschen, Arch. f. Gewerbepath. u. Gewerhyg. **2**: 330, 1931.
7. Gray, I.: Recent Progress in the Treatment of Plumbism, J. A. M. A. **104**: 200 (Jan. 19) 1935.
8. Holmes, H. W.; Campbell, K., and Amberg, E. J.: The Administration of Vitamin C in the Treatment of Lead Poisoning, J. Lab. & Clin. Med. **24**: 1119, 1939.
9. Belknap, E. L.: Control of Lead Poisoning in the Worker, J. A. M. A. **104**: 205 (Jan. 19) 1935.
10. Kety, S., and Letonoff, T. V.: The Treatment of Lead Poisoning by Sodium Citrate, Am. J. M. Sc. **205**: 406, 1943.
11. Kehoe, R. A.; Cholak, J.; Hubbard, D. M.; Bambach, K., and McNary, R. R.: Experimental Studies on Lead Absorption of Excretion and Their Relation to the Diagnosis and Treatment of Lead Poisoning, J. Indust. Hyg. & Toxicol. **25**: 71, 1943.
12. Oliver, T.: Lead Poisoning from the Industrial, Medical and Social Points of View, New York, Paul B. Hoeber, 1914.
13. Johnstone, R. T.: Occupational Medicine and Industrial Hygiene, St. Louis, C. V. Mosby Company, 1948.

episodes during metabolic upsets. It is this latter statement which apparently is the principal argument used by the advocates of deleading. It sounds almost convincing, but in my experience, in treating over 60 patients with lead intoxication and hundreds with absorption, not one patient had any such metabolic upset, liberating stored lead to such a degree as to be incapacitated. I admit that some conditions can produce some free circulating lead into the blood stream, but the results are negligible and the persons are symptom free as far as lead is concerned.

TABLE 4.—*Disability Studies*

Nonhospital Cases (27)	
Average loss time	15 days (1-47)
Number cases with no loss time	8
Number cases with loss time	19
Number cases with permanent disability award	3
Average award	5% (3-5-7)
Hospital Cases (35)	
Average loss time	31 days (7-55)
Number cases with permanent disability award	4
Average award	7.5 %

Belknap[14] stated, ". . . after an absence from lead exposure of one to two years, lead intoxication practically never develops." Aub[1] stated, ". . . from a theoretical standpoint, deleading is advisable, but from a practical point of view, the answer is dependent on which procedure will advance most promptly to a recovery of health." I agree wholeheartedly with this declaration, but one can hardly miss the implication in this statement that deleading is not advisable from a practical point of view. In other words, it does not appear to be the method of choice.

It has also been stated that circulatory lead may cause tissue damage but stored lead in the bones produces no deleterious effects. If this is so, and, so far as is known, it has been accepted by most men in this work, then what is the justification for employing a method as therapy which is acknowledged by its advocates as dangerous and uncertain as to its ultimate results? No method is available for the complete removal of lead from the body, and I can see no reason for deleading when it is well recognized and accepted that there is a normal metabolism governing the intake and output of lead from the body. It is my opinion that no remedy has been found to justify the dangers inherent in deleading. It is my contention that it is more advisable not to employ deleading procedures, in view of the fact that simple immobilization of lead within the skeletal structures of the body is the most rapid and safe method of bringing about a state of well-being.

My method of treatment during the convalescent (subacute) and chronic phases of this disease is purely symptomatic (associated with observations of the blood). This is simple, direct and productive of excellent results.

In the subacute or convalescent stage, I prescribe as follows:

1. Regular diet
2. Mild laxatives
3. Calcium wafers
4. Iron and vitamin B complex therapy for anemia and as a tonic
5. Monthly red blood cell counts and determination of stippling and hemoglobin
6. No further lead exposure

During the chronic phase, I use the following routine:

1. Permanent removal from exposure
2. Fresh air occupation (yard gang)
3. Adequate diet
4. Multiple vitamin therapy for fatigue, malaise and the like
5. Laxatives for constipation
6. Calcium, oral therapy, if indicated

COMMENT

Intravenous calcium therapy must be continued for at least three to four days after all symptoms of colic have disappeared, and withdrawal must be gradual—otherwise all symptoms may return. Calcium wafers (oral therapy) are given after discontinuance of intravenous therapy. No iron or calcium (oral) should be given during the acute phase, as I do not believe that they can be absorbed and utilized. Vitamins, milk and special diets are acceptable, but their value is questionable.

Permanent removal from lead exposure is obligatory. Hospitalization is preferred in all cases except in cases of mild disease; I believe that calcium should be given intravenously around the clock for quick and best results.

CONCLUSIONS

1. Deleading is not advocated because: (1) it is dangerous, (2) it prolongs hospitalization, (3) it prolongs length of disability and (4) results are uncertain.

TABLE 5.—*Résumé of Permanent Disability Cases*

Patient	Age, Yr.	Exposure, Weeks	Loss of Time, Days	Days Observed After Acute Phase	Cell Counts Returned to Normal, Months	Disability (Permanent) Award, Percentage
Nonhospital						
A. A.	27	16	12	441	7	7.0
J. A.	25	4	60	60	5	5.0
S. B.	36	20	47	150	2	3.0
Average						5%
Hospital						
E. H.	30	4	30	450	3	7.5
S. W.	40	8	20	87	3	7.5
W. O.	24	32	39	62	3	7.5
J. H.	22	22	22	49	2	7.5
Average						7.5%

2. Calcium immobilization therapy is advocated because: (1) it is simple and safe, (2) it shortens hospitalization, (3) it shortens length of disability and (4) results are certain.

It is therefore my opinion that until such time as some satisfactory deleading procedure is found, which will be simple, safe and able to shorten present length and amount of disability, I shall advocate calcium therapy as the method of choice.

14. Belknap, E. L.: Lead Poisoning: Criteria for Diagnosis, Indust. Med. **9**: 505, 1940.

PHYSIOLOGIC EFFECTS OF INDUSTRIAL SOLVENTS

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A glance at the stock shelves of any neighborhood store, even in a small town, shows that chemicals are playing an increasingly important part in our daily life. The grocer sells synthetic detergents; the hardware store, paints, laquers, paint and stain removers; the drugstore, insecticide sprays; the corner gasoline station offers window cleaners and all manner of chemicals for service of the automobile, and the local tailor installs modern dry cleaning equipment using the latest synthetic solvents. All of these new materials are intended to simplify or to beautify modern life, and often they actually do so. From the point of view of the physician, however, chemicals may complicate rather than simplify health problems, since, if the materials are not used with adequate information or intelligence, new and unexpected hazards are introduced.

The health hazards, which have so long been regarded as "industrial," are no longer purely such. Manufacturers of chemicals and those who fabricate them into new goods are, of course, confronted with complex problems of health in their workers, and the proper protection of workers by physical means and medical observation is an essential phase of modern industrial organization. Yet the health problems which may arise from the use of the same chemicals in the home or by small business can assume a more serious aspect than the difficulties met in organized industry, for scientific control of exposure to chemicals is not to be expected in a home, nor can it be expected to reach the same efficiency in a small business as in a large plant. It follows that, as the making and using of chemicals increases, so also increases the demand on the general practitioner for at least a working knowledge of their general action. This does not mean that each physician must become a toxicologist. In my opinion chemicals are of minor statistical significance as a primary cause of serious morbidity or mortality, particularly in comparison with the numerous injuries and deaths caused each year by a single physical agent, the automobile. But the entrance of synthetic chemicals into the body can add important physiologic loads to those to which one is already subjected by climate, infectious diseases and physical labor. Such additional loads may assume great significance in the continuing battle with the environment.

USES AND EFFECTS OF SOLVENTS

The present discussion concerns a varied group of chemicals included under the term "solvents." The widespread use of such materials, the mode of application and certain physical properties make them important as a source of health hazards. In industry, solvents facilitate the separation of desired materials from impurities and the final preparation of highly pure products. They are also employed to remove grease and other contaminants from metal. In the household and the small plant, the latter use predominates. In industry, the value of a solvent lies not only in its ability to dissolve required materials but also in its property of being volatile at suitable temperatures so that the dissolved material can be recovered in solid form. Frequently, also, a solvent is chosen because it can be recovered easily by condensation. Solvent recovery systems are highly important, since the loss of the solvent vapor to the atmosphere may be costly. Such systems may be very complicated.

It is this property of volatilization that makes solvents important in any study of health problems due to chemicals. A solid or a liquid remains in its container unless by deliberate interference or carelessness it is dispersed into the atmosphere of a workroom or a home. But a liquid may exert a vapor pressure at its surface at all ordinary temperatures, and the vapor does not stay in one place but may be diffused or be carried by air currents away from the container to all points of a work area or a home. The removal of the vapor at the surface of the liquid leads to further evaporation of the liquid and further addition of vapor to the atmosphere. Special equipment is needed to prevent dispersion of vapors from solvents into the atmosphere, and such equipment is not found in the household and may not be available to the small business user of chemical solvents.

Both the liquid solvent and its vapor can affect the human body, but the relative ease of production of physiologic effects is far greater with the vapor than with the liquid. The surface area of the body of an average man is about 2 square meters. Most of this is usually protected by clothing from easy contact with the liquid, and much of the surface area of the body is not permeated by liquids or vapors with great ease. By contrast, at each inspiration, the lungs offer a capillary surface area of about 100 square meters to the inhaled atmosphere, and through this area inhaled material, if in the state of vapor or gas, is very easily absorbed into the blood stream.

Solvents in contact with the skin may remove natural fats and oils, leaving a dry cracked skin which offers an easy path for infection. If the solvent is in contact with the skin under clothing, so that it cannot evaporate, it will often produce a severe burn, comparable to the ether burn formerly seen so often in open cone anesthesia. For this reason, conclusions as to the ability of solvents to irritate the skin or to cause allergic dermatitis should not be based on "patch tests" in which the liquid is applied to the skin under cover.

Solvents can actually penetrate the skin far more often than is generally believed, entering lymphatic or blood streams and eventually being dispersed throughout the body. The studies of Hudack and McMaster [1] show how easily entrance through the skin can be made by liquids or even solid particles. One can conclude only that the exposed parts of the body are not nearly so well protected by the skin as was formerly supposed.

The greater health hazard from solvents is obviously due to inhalation of their vapors. Materials entering the lungs in low concentration in vapor or gaseous form

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This paper and the three preceding papers are part of a symposium of seven papers. The three remaining papers, by Dr. Rex H. Wilson, Dr. L. E. Hamlin and Dr. Nelson P. Anderson, will appear in THE JOURNAL next week.

Read in a Joint Meeting of the Section on General Practice and the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Hudack, S. S., and McMaster, P. D.: The Lymphatic Participation in Human Cutaneous Phenomena: A Study of the Minute Lymphatics of the Living Skin (Intracutaneous Injection of Pontamine Sky Blue Dye), J. Exper. Med. 57: 751-774 (May) 1933.

can be absorbed into the capillary blood stream to the extent of 75 to 90 per cent of that concentration. The general laws governing such absorption are well described by Henderson and Haggard.[2] The rate of absorption of a vapor or a gas will depend on its concentration in the inhaled air in relation to its concentration and solubility in the blood. So long as the blood passing through the lungs is not saturated with the absorbed material, it can continue to take up more and more. If body tissues can absorb the chemical, they will to that extent diminish the concentration in the blood and so lead to further absorption through the lungs into the blood. Of course, there will eventually approach a time at which the tissues and the blood are saturated, and no more vapor can be absorbed through the lungs. However, before this saturation is reached, there is usually specific action of the chemical, which will drastically change either the respiratory cycle or the flow of blood through the lungs.

Since the absorption of chemicals presented in vapor form to the lungs depends on the exposure of a tremendous area of capillary bed at each inspiration, and on the amount of blood present in the lungs, it is obvious that any situation which leads to increased respiratory exchange or increased blood flow through the lungs will necessarily increase the rate of absorption of the chemical. For this reason, a given concentration of vapor in the atmosphere of the workroom or a home could be harmless to one sitting quietly, but dangerous to that same person performing physical labor, which requires a greater blood flow through the lungs, more frequent oxygenation of that blood flow to satisfy the oxygen demands of the tissues and, therefore, increased respiratory exchange.

Removal from the contaminated atmosphere stops the absorption of vapor through the lungs, and a reverse process of exhalation may then start. The partial pressure of the vapor in blood passing through the lungs becomes greater than that in the alveolar air. The material passes into the alveoli from the blood capillaries and is gradually diluted and washed out of the alveoli by each inspiration of uncontaminated air. The concentration of the chemical in the blood will thus be depleted fairly rapidly. If the tissues, now in contact with blood containing a low concentration of chemical, can give up that which they have absorbed, there may be a progressive and eventually complete removal of the foreign material from all parts of the body. This process may take several hours. Any one who has used ether as a solvent or anesthetic knows that its odor persists in the breath, and its taste in the mouth, for hours after the use is stopped.

Conditions which increase the flow of blood through the lungs or the rate and depth of respiration of uncontaminated air will facilitate removal of the inhaled chemical. But the most easily applied means of doing this—exercise—should be used with great care, for, as shall be seen later, even low concentrations of solvent vapors may affect the arterial and venous circulation and the tonus of skeletal muscles so that the physiologic load produced by muscular activity may be harmful rather than helpful.

The term "solvents" covers a large number of chemical types. One often talks of subgroups as aliphatic or aromatic hydrocarbons, or chlorinated hydrocarbons and so on, with the implication that the specific toxicity of the chemical groups can be so designated. This is a serious error. Because tetrachlorethane and carbon tetrachloride appear to have a pronounced action on the liver, it is wrong to state that, in general, chlorinated hydrocarbons affect the liver. Because benzol produces serious interference with the metabolism of the bone marrow, it is not correct to infer that aromatic hydrocarbons as a group produce such interference. There is no relationship as yet proved between chemical constitution and pharmacologic action, and the more one knows about the ultimate specific pathologic conditions produced in poisoning by modern chemicals, the less one is inclined to argue by analogy from chemical structure.

At the moment, I am not concerned with the ultimate action on specific tissues of inhaled solvent vapors or liquid solvents absorbed through the skin, but rather with the general physiologic effects produced while the blood remains only partially saturated by inhaled vapor and while there has been no appreciable concentration of the chemical in any particular organ or tissue. At this stage a series of symptoms and signs may appear, which is nonspecific for any chemical structure or any physical condition of the chemical. This series of symptoms and signs may be elicited by any chemical which enters the body and is generally distributed through the tissues. The exact mechanism of production of this physiologic picture is not clear. Fundamentally, it is probably due to interference with tissue respiration. Specific differences in chemicals may lead to specific types of interference with factors in the complex process of tissue respiration. Yet, the end result is the same, namely, an insufficient supply of oxygen to the tissues or inability of the tissues to use effectively the oxygen supplied to them.

SYMPTOMS OF INHALATION

The symptoms produced by inhalation of the vapors of solvents include unusual fatigue, lassitude or irritability; headache; gastrointestinal disturbances (nausea, gas on the stomach, loss of appetite, epigastric pain); palpitation; precordial pain; dizziness; pain or numbness or tingling in the extremities, and dyspnea on slight exertion. These symptoms are listed roughly in the order of their appearance as exposure to the vapor becomes more intense or is more prolonged. They are not all necessarily found in one patient, but unusual fatigue is prominent in most cases. Some of these symptoms could be ascribed definitely to the action of the vapor on the central nervous system or its blood supply. Thus, in many cases, the type of headache is that which would be produced by dilation of cerebral blood vessels, and the gastrointestinal disturbance is not due to any particular unpleasant taste or odor of the vapors, but would seem to be due to unusual activity of the autonomic nervous system. The precordial pain could be produced by mere deprivation of oxygen. So also could dizziness and palpitation. Taken as a whole, this group of symptoms (as well as some of the signs observed) is similar to that associated with adrenal cortical insufficiency, but proof is lacking that they are due to this. The gastrointestinal disturbance resulting from exposure to vapors of solvents and leading to loss of appetite and, therefore, to a poor state of nutrition, can build up a vicious cycle. With poor nutrition, fatigue may be increased. So also might

2. Henderson, Y., and Haggard, H. W.: Noxious Gases and the Principles of Respiration Influencing Their Action, American Chemical Society Monograph Series, New York, Chemical Catalog Company, 1927.

dizziness. So long as the exposure to the chemical is continuous or frequently repeated, it might be extremely difficult to find a point of breakage of the cycle.

The most easily detectable sign of inhalation of solvent vapor is disclosed by the measurement, under standard conditions, of arterial blood pressure. A low concentration of vapor, just adequate to produce any physiologic response, increases the diastolic pressure without causing a comparable increase in systolic pressure. Frequent repetition or a continuance of this grade of exposure may produce an ever rising diastolic pressure, which may eventually become fixed at levels above 90 mm. I have seen situations in which a solvent at a concentration as low as one-third part per million has produced a diastolic blood pressure of over 100 mm., sitting, in young adults. With a high diastolic pressure but no proportional increase in systolic pressure, there is a chronic low pulse pressure.

Apperly and Cary,[3] after a study of pulse pressure–pulse rate product and the arteriovenous oxygen difference, conclude, ". . . pulse pressure serves as a rough but valuable indication of the reciprocally varying needs and blood supply of the viscera and muscle masses of the body. . . . A high pulse pressure . . . indicates that a larger (and the low pulse pressure of circulatory failure a lower) proportion of the total blood volume is being shunted through the arms (and possibly all muscle masses)." If one accepts this conclusion, a chronic low pulse pressure, without a relative increase in pulse rate, indicates an inadequate supply of oxygen to the muscles. This situation must lead to easy fatigue. If the pulse rate becomes unusually high (e. g., above 100 per minute), acute circulatory collapse can occur, and this can be fatal. Yet, even in such fatal cases, there is absolutely no specific organ pathologic condition detectable at autopsy.

I have never seen systolic hypertension as such produced by exposure to the vapor of a solvent or any other type of chemical, but systolic hypertension can enter the picture if, with a diastolic pressure chronically above 90 mm. as the result of exposure to chemicals, there is added psychic stress, such as financial worry, worry about the family or difficulties in the job.

Inhalation of high concentrations of solvent vapors leads first to a depression of systolic pressure without a fall in diastolic pressure. Again, the pulse pressure is lowered, and, if the situation is allowed to continue, fatigue may result. Increase of the intensity or the duration of exposure may lead to a fall of diastolic pressure with a temporary increase in pulse pressure. Eventually, all three, systolic, pulse pressure and diastolic pressure, are lowered. In persons frequently exposed to volatile chemicals, systolic blood pressures below 100 mm. are common with or without diastolic blood pressure below 60 mm.

When the changes in arterial blood pressure are such as to produce a chronic low pulse pressure and, therefore, a chronic deficiency of oxygen to the muscles, the fatigue and lack of tonus of the musculature, particularly in the abdominal wall and lower part of the body, will result in a low venous return to the right side of the heart. Unless this situation is balanced by an increase in pulse rate, the low venous return may cause an abnormally low cardiac output. With poor venous return and poor cardiac output, there may frequently be extreme dizziness on standing or actual syncope. Recovery from syncope occurs rapidly once the patient falls to the ground, but recovery may not occur if the patient falls in cramped quarters in such a position that the head cannot be lower than, or as low as, the feet.

These signs of abnormal circulation and the unusual fatigue accompanying them may exist for weeks and months. It may be extremely difficult to find their source unless the physician knows that the patient is using volatile chemicals. Patients showing these symptoms and signs may often be considered as suffering from neurocirculatory asthenia or may be classed as subjects for psychosomatic study. As long as the condition exists, the patient may never know what it is to feel really well. Yet, the moment the source of exposure to the chemical causing the condition is discovered and removed, these patients will revert to normal within three weeks to a month, only to regress rapidly if the inhalation of vapor is renewed. It is important to note that a patient incompletely recovered from the circulatory action of one chemical may be extremely susceptible to the physiologic action of a second substance in concentrations which may not have affected the patient previously. Further, the presence in the atmosphere of low concentrations of two or more vapors may lead to an intensity of physiologic action not predictable from consideration of the individual concentrations of the contaminants or even the total of those concentrations.

This simple picture of adverse physiologic trends is not usually accompanied with any indication of specific organ injury. It may be present for weeks or months before the slightest changes could be detected, for example, in the blood picture, if the particular solvent is such as to affect the blood picture. But eventually, unless conditions are remedied, there may be specific organ injury, and a classic picture of poisoning by the particular chemical is observed.

Knowledge gained by frequent observation of the nonspecific phase of physiologic action of chemicals has often tempted me to suggest that the specific organ injury which occurs much later may also be due to local disturbance of circulation. Evidence for this hypothesis is not lacking. Glynn and Himsworth [4] referred to Loeffler and Nordmann, who, using the quartz rod technic for direct observation of the liver in anesthetized animals, observed a sharp narrowing of the hepatic sinusoids in mice and rats within fifteen minutes of inhalation of chloroform. The portal veins remained normally patent. The changes in the sinusoids persisted for several hours. After ten to twenty-four hours, the centrilobular sinusoids dilated, but the blood flow was still retarded. Return to normal took from three to ten days. Wakim and Mann [5] made a similar study. When they momentarily held a swab soaked in carbon tetrachloride to the nose of a rat, there was an immediate, but transient, constriction of liver sinusoids. Rats exposed to carbon tetrachloride vapor for as long as thirty minutes showed a severe and persistent reduction of intralobular circulation. Many sinusoids were obliterated. Most of the sinusoids were still obliterated twenty to twenty-four hours after exposure. Most of

3. Apperly, F. L., and Cary, M. K.: Relation of Arterial Pulse-Pressure to Arterio-Venous Oxygen Difference, Especially in Arterial Hypertension, Proc. Soc. Exper. Biol. & Med. **48**: 492-495 (Nov.) 1941.

4. Glynn, L. E., and Himsworth, H. P.: The Intralobular Circulation in Acute Liver Injury by Carbon Tetrachloride, Clin. Sc. **6**: 235-241 (Feb. 16) 1948.

5. Wakim, K. G., and Mann, F. C.: Effect of Experimental Cirrhosis on Intrahepatic Circulation of Blood in Intact Animal, Arch. Path. **33**: 198-203 (Feb.) 1942.

those still open were supplied by the hepatic artery. The appearance of the liver and its circulation had returned to normal two to four weeks later. A similar picture followed subcutaneous injection of carbon tetrachloride. Glynn and Himsworth [4] repeated the experiment with carbon tetrachloride and made the same observations. From these studies it would seem possible that even a transient exposure to certain solvents could drastically affect circulation to specific tissues. The ultimate pathologic condition is not necessarily due to direct action of the chemical on the particular tissue showing injury, but to a secondary result of persistently diminished blood supply, i. e., chronic hypoxia. Such a process would make clear the increased susceptibility of the liver to poisons when the patient is suffering from anoxia or malnutrition and the beneficial effects of administration of oxygen or proper diet.

PHYSIOLOGIC ACTION OF SOLVENTS AS CONTRIBUTORY FACTOR

I have already stated my opinion that solvents are not statistically important as a primary cause of serious morbidity or mortaltiy. I would repeat this and amplify it by the opinion that the nonspecific physiologic action of solvents could become an important contributory factor in total morbidity from disease or physical agents. The circulatory deficiencies caused by chemicals render the victim less able to bear other physiologic loads imposed by malnutrition, infection, extreme conditions of temperature and humidity, alcoholism or other addictions, and even conventional therapy with modern synthetic drugs, such as the sulfonamide derivatives. Every one will recognize the list of symptoms which are produced by exposure to volatile solvents as a list common in disease regardless of its origin. There is often no more specificity in the early physiologic trends produced by infection than has been observed with chemicals. Life depends on proper supply of oxygen to the tissues. Two major physiologic systems are concerned with this supply—the respiratory and the cardiovascular. Of these, the cardiovascular is the harder to maintain once it shows serious evidence of failure. Cardiovascular diseases are the primary cause of morbidity and mortality among young and old. The introduction of any new factor which may affect the efficiency of the cardiovascular system must at once assume importance.

FATIGUE

There is a further reason for giving careful attention to the nonspecific phase of physiologic action of chemicals. Impaired circulation results in fatigue. There is a demonstrable relationship between impaired circulation, fatigue and accidents. Accident proneness need not be due, as psychiatrists suggest, to "constitutional inadequacy." It may be due to physiologic inadequacy. A worker (or a housewife), normally careful and, therefore, not often the victim of accidents, may become temporarily accident-prone by injudicious use of a chemical solvent.

COMMENT

The remedy for this situation is, first, education of the manufacturer and vendor of solvents to label them properly, indicating the degree of hazard and the physiologic route, and, second, education of the user to read labels or, if no label is present on the package, to be careful not to spill the solvent on skin or clothing and never to use it in confined spaces or in any situation where there is not good ventilation. Finally, the physician can do much to remedy the situation. In taking the history of a patient, whether in industry or not, he should include details of work performed, use of solvents or special equipment. When no definite evidence of infection or pathologic change is discovered, more details of work performed preceding, or at the time of, onset of illness should be obtained. Last, but by no means least, the physician who fails to discover any ordinary source of the patient's malaise but does obtain some history of exposure to a solvent should not at once conclude that serious poisoning by that particular solvent has occurred. The whole picture of early action of solvents (or other chemicals), in the absence of pathologic changes may be one of general debility, nervousness and apprehension. A definite statement on the part of a physician that such and such a chemical has poisoned the patient will do nothing to allay alarm. It may often introduce a serious psychic factor into the picture—a factor which no amount of subsequent discussion can entirely remove. The better plan is to advise the patient carefully on proper use of the materials involved, to assure him or her that a few weeks without exposure will lead to complete recovery and in the meantime to prescribe adequate rest, proper nutrition and proper, but not excessive, recreation in the open air. If the patient is the operator of a small business using solvents, the physician can do much by advice about hygienic working conditions. Such advice appears much more practical and is deprived of a purely "philosophic" atmosphere by a visit to the place of business, where the physician can observe working conditions and discuss improvements. He will, by such a practice, help both his patient and himself, for only by acquiring a practical knowledge of the use to which modern chemicals are put by the housewife or the small business operator can the physician educate himself in an increasingly important phase of general medical practice.

The Psychopath and Human Misery.—If one could assess the human misery produced, it might well be found that the psychopath has a blacker record than either the neurotic or the psychotic. The neurotic knows he is ill, is only too willing to seek medical aid, and is usually prepared to cooperate; the psychotic's illness is patent to his friends, they can persuade or compel him to receive treatment, and his detention can continue until he is well; with the psychopath, however, it is always the rest of the regiment who are out of step. He has been let down or unfairly treated; it is not he but society which must put itself right; as for seeing or cooperating with the doctor, it is an insult. So the psychopaths in our midst go through life creating trouble. In the factory or office, in the club or society, in the hospital or nurses' home, they build up around themselves a circle of discontent, not the divine discontent of the rebel or reformer, but the narking, carping, querulous complaining of men and women with a grievance against society. I must confess to a fascination in the psychopath, ever since I realized that Hitler and his gang were psychopathic criminals carried to the top on a wave of uncured unemployment. They had all the superficial attraction which makes the psychopath the ideal "con" man. And in Trevor-Roper's book, "The Last Days of Hitler," one can study the miserable spectacle of the psychopath in defeat. One of the problems of politics is to keep psychopaths away from the top; and in Britain we have solved it by making the top comparatively unattractive.—Stephen Taylor, M.D.: The Psychopath in Our Midst, a Danish Solution; *The Lancet*, Jan. 1, 1949.

AUREOMYCIN IN TREATMENT OF EXPERIMENTAL AND HUMAN TULAREMIA

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The new antibiotic, aureomycin, first described by Duggar,[1] has been shown to exert specific effect when administered to patients suffering with diseases caused by gram-negative [2] and certain gram-positive organisms.[2b] Detailed reports of its usefulness in rickettsial infections have now been recorded, and aureomycin perhaps exerts its greatest influence in this group of diseases.[3] Favorable results from its employment in lymphogranuloma inguinale have been published.[4] No toxic effects other than nausea and occasional diarrhea attributable to the drug have been observed in our experience or in the patients who have been treated with this agent and reported in the medical literature.

We have been interested in the chemotherapy of tularemia since 1947, when para-aminobenzoic acid (PABA) was observed by us to exert slight benefit in mice experimentally infected with Bacterium tularense. This effect, however, did not in any way approach that achieved with streptomycin, but in infected mice treated with para-aminobenzoic acid survival was prolonged in comparison with untreated controls. Results in a patient observed during the summer of 1948 tended to verify these observations. The patient, a 70 year old Negro, was treated with para-aminobenzoic acid for nine days because he was thought to have Rocky Mountain spotted fever when first observed. He gave a history of tick contact and the absence of demonstrable rash was attributed to the dark color of his skin. The disease was subsequently identified as that of tularemia through the demonstration of agglutinins in rising titer for B. tularense up to 1:10,240. The patient improved with para-aminobenzoic acid therapy with reduction in toxicity and return of temperature to normal in three days. The medication was discontinued after six days of normal temperature. Three days later a febrile relapse occurred, which subsided spontaneously without specific therapy over a period of eight days, and the patient fully recovered.

The role of streptomycin in the treatment of tularemia is well known.[5] Rabbit fever perhaps affords this antibiotic its clearest and most favorable indications for use. Nevertheless, search must continue for other effective agents, since streptomycin is not without certain undesirable side effects, developing particularly after prolonged usage. Smith and his co-workers,[6] in their early work on chloromycetin®, reported in vitro sensitivity of B. tularense to this antibiotic at approximately 0.4 microgram per cubic centimeter.

In experimentally infected mice we have compared the effectiveness of streptomycin, aureomycin and chloromycetin® and recently had the opportunity to treat 3 patients with tularemia with aureomycin. These observations are the basis for this report.

METHODS AND MATERIALS

Mice weighing 20 Gm. were inoculated intraperitoneally with B. tularense in 0.1 cc. amounts of varying dilutions. The strain of tularemia was secured from Dr. Carl Larson of the United States Public Health Service at Bethesda, Md., who had recently isolated the organism from a patient. Stock cultures were grown on blood glucose cystine agar, which produced luxuriant colonies in three to four days. Bacterial suspensions used for inoculations were prepared from these three day agar slants. B. tularense was demonstrated frequently in smears made from the spleens of dying mice and stained by Wayson's technic. B. tularense was recovered by inoculation of material obtained from the exudate of spleens and livers of autopsied or killed animals on blood glucose cystine agar incubated at 37 C.

The antibiotic agents were administered intramuscularly three or four times a day, as follows: streptomycin 0.75 mg., aureomycin 1.0 mg. and chloromycetin® 0.75 mg. per dose. The antibiotic was administered shortly after the infecting dose in most instances, but several groups of mice were treated after eighteen hours. Treatment time ranged from three to four days. In the third animal experiment the infectious inoculum of B. tularense was prepared from the stock agar slant in the dilution of 10 minus 1. A series of six dilutions were then prepared (table 2) in which dilution 6 contained about 3,000 organisms per cubic centimeter.

Aureomycin was supplied by the Lederle Laboratories Division of the American Cyanamid Company and the chloromycetin® by the Department of Clinical Investigation of Parke, Davis & Company.

RESULTS OF EXPERIMENTS WITH MICE

The results of three separate experiments are best shown graphically in tables 1 and 2.

In table 1 it will be noted that all mice, treated and untreated, eventually succumbed to B. tularense infection. In the first experiment the mean hour of death in the aureomycin group was 312, as compared with 36 and 32 hours in the streptomycin and chloromycetin® groups, respectively. The controls died in 23.4 hours. In experiment 2 (table 1), in which the infectious inoculum

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1. Duggar, B. M.: Introductory Paper, read before the Conference of Section of Biology, New York Academy of Science, July 21, 1948.

2. (*a*) Bryer, M. S.; Schoenbach, E. B.; Chandler, C. A.; Bliss, E. A., and Long, P. H.: Aureomycin: Experimental and Clinical Investigations, J. A. M. A. **138**:117-119 (Sept. 11) 1948. (*b*) Finland, M.; Collins, H. S., and Paine, T. F., Jr.: Aureomycin: A New Antibiotic, J. A. M. A. **138**: 946-949 (Nov. 27) 1948.

3. Ross, S.; Burke, F. G.; Rice, E. C.; Schoenbach, E. B.; Bischoff, H., and Washington, J. A.: Aureomycin: Preliminary Report of a Clinical Trial, Clin. Proc. Child. Hosp. **4**: 315-331, 1948. Cooke, C.: Rocky Mountain Spotted Fever Treated with Aureomycin, J. A. M. A. **138**: 885 (Nov. 20) 1948.

4. Wright, L. T.; Sanders, M.; Logan, M. A.; Prigot, A., and Hill, L. M.: Aureomycin: A New Antibiotic with Virucidal Properties, J. A. M. A. **138**: 408-412 (Oct. 9) 1948.

5. (*a*) Keefer, C. S.: Streptomycin in Infections, report of National Research Council, J. A. M. A. **132**: 4-11 (Sept. 7) 1948. (*b*) Atwell, R. J., and Smith, D. T.: Primary Tularemia Pneumonia Treated with Streptomycin: Report of Two Cases, South. M. J. **39**: 858-860 (Nov.) 1946. (*c*) Hunt, J. S.: Pleuropulmonary Tularemia: Observations on 12 Cases Treated With Streptomycin, Ann. Int. Med. **26**: 263-276 (Feb.) 1947. (*d*) Heather, A. J., and Scott, E. G.: Tularemia: Case Treated with Streptomycin, Delaware State M. J. **18**: 148-150 (July) 1946. (*e*) Hartnett, G. W., and Mollica, S. G.: Tularemia: Treatment of Two Cases with Streptomycin, South. M. J. **39**: 774-777 (Oct.) 1946. (*f*) Berson, R. C., and Harwell, A. B.: Streptomycin in Treatment of Tularemia, Am. J. M. Sc. **215**: 243-249 (March) 1948.

6. Smith, R. A.; Joslyn, D. A.; Gruhzit, O. M.; McClean, I. W., Jr.; Penner, M. A., and Ehrlich, J.: Chloromycetin: Biological Studies, J. Bact. **55**: 425-448 (March) 1948.

was more dilute, the same proportionate results were obtained.

It will be observed in table 2 that there were no fatalities in aureomycin-treated mice inoculated with the fifth and sixth dilutions, whereas in the streptomycin-treated animals deaths occurred in these dilutions. In

TABLE 1.—*Chemotherapeutic Effect Obtained in Mice Infected with B. Tularense*

Experiment No.	Type of Drug	Mg./Day Mouse *	Days Treated	Number of Mice	Inoculum	Mean Hour of Death
1	Aureomycin.....	2.25	3	5	0.1 cc.	312
	Streptomycin.....	2.25	3	5	of a 1:1	36
	"Chloromycetin".	2.25	3	5	suspen-	32
	Controls.....	....	..	..	sion	23.4
2	Aureomycin.....	3.0	3	5	0.1 cc.	288
	Streptomycin.....	2.25	3	5	of a 1:6	99.9
	"Chloromycetin".	2.25	3	5	suspen-	36.4
	Controls.....	....	..	10	sion	28

* Administered in three divided doses every eight hours.

this latter group, however, the mean day of death was much later than was observed in the untreated control group. In the sixth dilution of the infectious inoculum there were approximately 3,000 organisms (B. tularense) per cubic centimeter.

REPORT OF CASES

CASE 1 (fig. 1).—The clinical record of a patient with ulceroglandular tularemia complicated by pneumonia and treated with aureomycin is recorded in detail as follows. The patient was a 53 year old Negro who killed and skinned a rabbit on November 15, the first day of the hunting season. After five days he noticed malaise, cough and fever, for which he received a sulfonamide drug for an unknown period. The temperature ranged between 100 and 105 F., and about four days prior to admission he complained of a tender mass in the right axilla. On admission to the University Hospital, on December 2, he was in a semidelirious toxic state, the temperature was 103.5 F.,

TABLE 2.—*Chemotherapeutic Effect Obtained in Mice Infected with B. Tularense*

Type of Drug	Mg./ Day Mouse	Days Treated	Graded Dilution of Infectious Inoculum * 1	2	3	4	5	6
Aureomycin.....	3.0	4	0/4	2/4	0/4	2/4	4/4	4/4
Mean day of death	...	..	3.25	13.0	14.25	16.25	0	0
Streptomycin.....	2.25	4	0/4	0/4	0/4	2/4	1/4	0/4
Mean day of death	...	..	4.0	4.75	6.0	16.25	16.0	13.25
"Chloromycetin"....	2.25	4	0/4	0/4	0/4	0/4	0/4	0/4
Mean day of death	...	..	2.0	3.0	3.0	3.0	3.0	4.0
Controls.....	...	..	0/4	0/4	0/4	0/4	0/4	0/4
Mean day of death	...	..	2.0	2.0	2.0	3.0	3.0	3.75

* The numerator represents the number of surviving mice and the denominator indicates the number of mice used in the experiment.

breathing was quickened, speech was muttering in type and the patient was incoherent. The conjunctivas were moderately injected, and there was inability to protrude the tongue. There was moderate stiffness of the neck with definite limitation of flexion. The blood pressure was 118 systolic and 70 diastolic; the pulse rate was 120 and of poor quality. The heart was not enlarged, and the sounds were normal without arrhythmia. There was suppression of breath sounds in both lungs, elicited best posteriorly, where there were numerous rales heard. There was no sign of pleural fluid. A roentgenogram of the chest taken on admission revealed bilateral pulmonary infiltration. According to Dr. Charles Davidson, there was a homogeneous lobular infiltration present in the left lower lung field overlying the third anterior interspace. There were patchy areas of infiltration in the right cardiodiaphragmatic angle, supradiaphragmatic area and the second, third and fourth anterior interspace on the left. There was gaseous distention of the large bowel.

Abdominal distention was pronounced and appeared to be contributing to the labored respiration. Meningismus was the only abnormal neurologic observation. There was a small fluctuant area on the terminal phalanx of the right index finger from which pus was aspirated. A gland in the right epitrochlear area was peanut sized, and a tender gland in the right axilla was as large as an olive. Material was aspirated from the small ulcer and the epitrochlear gland and blood taken for animal and serologic studies. Sputum could not be obtained because of the extreme degree of dehydration. Intravenous and subcutaneous fluids were administered in liberal quantities and enemas employed to combat the extreme gaseous distention of the intestine.

At 6:30 p. m. on the evening of admission (twelfth day of disease) aureomycin therapy was started, with an initial dose

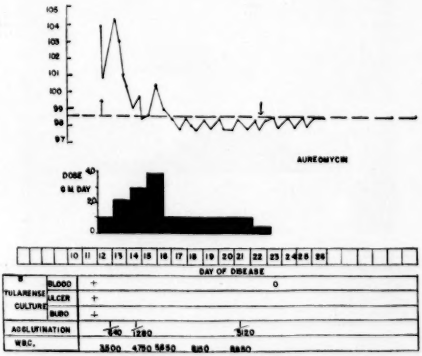

Fig. 1 (case 1).—Chart of results in a patient (male, age 53, 150 pounds [68 Kg.]) with ulceroglandular tularemia complicated by bilateral pneumonia. Treatment was with aureomycin. The upper left hand column of figures shows the temperature (Fahrenheit).

of 100 mg. intramuscularly in buffered solution plus 0.75 Gm. by stomach tube. In the second twenty-four hours 350 mg. intramuscularly and 1.75 Gm. by tube were administered on a four hour schedule. On the third and fourth days 3.0 Gm. and 4.5 Gm., respectively, were given orally every four hours in divided doses. The medicament was then given every six hours in doses of 0.25 Gm. for six days. The total amount of aureomycin administered was 15.25 Gm. orally and 800 mg. intramuscularly.

Figure 1 shows the encouraging response. The temperature descended in linear fashion and first reached normal thirty-six hours after institution of therapy. On the following day the temperature rose to 100 F. rectally for a short time and except for one isolated elevation remained normal thereafter. A definite improvement in the mental status was apparent on the evening of the second day, and on the next day (third treatment day) the patient was fully coherent and cooperative. The pulse was of much better quality, although premature auricular contractions were observed. Abdominal distention and discomfort gradually improved and the patient had a formed bowel movement after two days of treatment. The pulmonary signs slowly resolved, and on the ninth treatment day a roentgeno-

gram revealed practically complete clearing of the pulmonary infiltration. The epitrochlear and axillary buboes rapidly resolved, as did the small ulcer on the finger.

Laboratory Data.—The essential laboratory data are recorded in figure 1. Bacteria identified as B. tularense were isolated from the spleens of mice and inguinal glands of guinea pigs, the animals having been previously inoculated with material obtained from the finger lesion, epitrochlear gland and blood of the patient. Organisms were isolated by direct culture from the ulcer and buboes. All strains of B. tularense isolated were agglutinated by antitularemia serum. The agglutinating titer for B. tularense in the patient rose to 1:5,120 (fig. 1).

Studies of hepatic function were performed during convalescence, the results showing no obvious impairment of function of this organ. Results of the thymol turbidity test were negative. The results of the van den Bergh test were 0.3 mg. per hundred cubic centimeters (direct test) and 1.3 mg. per hundred cubic centimeters (indirect test). The serum albumin was 2.87 Gm. per hundred cubic centimeters and serum globulin 2.32 Gm. per hundred cubic centimeters. Convalescence in this patient was rapid, and he was discharged on the sixteenth day after admission.

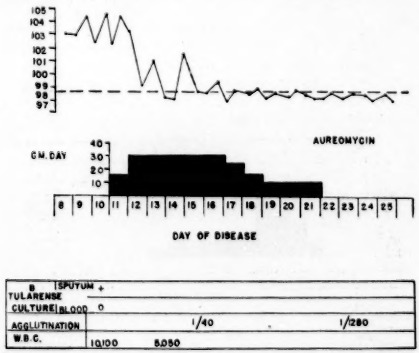

Fig. 2 (case 3).—Chart of results in a patient (female, age 46, 150 pounds [68 Kg.]) with typhoidal type tularemia treated with aureomycin. The upper left hand column of figures shows the temperature (Fahrenheit).

CASE 2.—The second patient receiving aureomycin was a 40 year old Negro with typhoidal type tularemia complicated by pleuropneumonia and pleural effusion. Aureomycin, started on the sixth day of illness, was administered orally in 0.5 Gm. doses every four hours. The temperature ranged between 101 and 104 F. on the day treatment was begun and reached normal after three and a half days of therapy (ninth day of illness). Thereafter, until the sixteenth day, single evening elevations of temperature reached between 99.2 and 100.4 F. Clear straw-colored fluid was removed from the pleural space on the fifteenth day which revealed no B. tularense after mouse inoculation. Diagnosis in this patient was confirmed by isolation of B. tularense in mice inoculated with blood and sputum. The serum agglutinating titer for B. tularense rose from 1:80 of the eleventh day to 1:1,280 on the fifteenth day of illness. The total amount of aureomycin administered was 32 Gm. The patient was fully convalescent at the time of writing.

CASE 3 (fig. 2).—The patient, a 46 year old Negro woman with typhoidal type tularemia, received aureomycin on the eleventh day of illness, with an initial dose of 1 Gm. orally and 0.5 Gm. subsequently every four hours. Toxicity was greatly reduced within twenty-four hours, and the temperature reached normal in forty hours. On the third treatment day there was an afternoon elevation to 101.4 F., but thereafter the temperature remained normal. Recovery was prompt and uneventful. Aureomycin therapy was discontinued after ten treatment days (twenty-first day of illness). The total amount administered was 22 Gm. orally. The diagnosis was confirmed by isolation of B. tularense in mice inoculated with sputum. The serum agglutinating titer for B. tularense rose from 1:40 on the fifteenth day of illness to 1:1,280 on the twenty-fourth day.

COMMENT

In our experience with experimental mouse tularemia, utilizing the standards as detailed previously, we have consistently found aureomycin to be more effective than streptomycin in delaying death. We have observed uniformly that if administration of these antibiotics is stopped in the heavily infected mouse death eventually occurs. Chloromycetin® has prolonged the survival time to a lesser extent than aureomycin or streptomycin. Perhaps frequent administration of chloromycetin® in infected mice will improve the experimental results in this animal.

It is well known that the results with the use of streptomycin are highly specific. In an analysis of 56 patients treated in Veterans' Administration hospitals Berson and Harwell[5f] reported that definite clinical improvement was observed within forty-eight hours after institution of therapy with streptomycin and the mean time for normal temperature was seven days. In the article first published on streptomycin by the National Research Council[5a] 67 cases of tularemia were reported, in which there were 63 recoveries and 4 fatalities, and in 55 the results were regarded as striking and immediate. There were 2 cases of relapse in this series. In the experience of others there has been universal prompt clinical response following streptomycin treatment in tularemia.[7] In these cases the temperature returned to normal in periods ranging from two to six days. B. tularense has been observed to disappear from the sputum and pleural fluid soon after administration of streptomycin.[5b] In a review of 6 patients with tularemia, at the University Hospital, treated with streptomycin the average duration of fever after institution of therapy was forty-two hours. In 1 of these patients, who was severely ill with pulmonary involvement, the temperature reached normal in ninety-six hours.

One patient (case 1) reported herein had a severe infection with tularemia which would have probably terminated fatally without chemotherapeutic help. His rapid response to aureomycin with prompt recovery, along with that of the 2 other patients treated with this antibiotic, suggests that this agent may prove as effective as streptomycin in the management of this severe disease. The ease of administration of aureomycin, which may be given with equal effectiveness either orally or intramuscularly, and its freedom from toxic complications justify a thorough clinical comparison with streptomycin in tularemia.

SUMMARY AND CONCLUSIONS

Aureomycin has been found to exert significant beneficial effect in mice experimentally infected with tularemia. Chloromycetin® has demonstrated much less effect in vivo. Three cases of tularemia are reported. The response of the patients to aureomycin therapy is regarded as comparable to streptomycin therapy in degree of effectiveness.

7. Hunt,[5c] Heather and Scott,[5d] Hartnett and Mollica,[5e]

CLOSURE OF TUBERCULOUS PULMONARY CAVITIES

As Accomplished by Residence in the Immobilizing Lung Chamber

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The intention of this paper is to present the use of lung rest, as achieved in the immobilizing lung chamber, as an alternative procedure to bed rest, pneumothorax or thoracoplasty in suitable cases of cavitary pulmonary tuberculosis.

In 1940, residence in the immobilizing lung chamber was shown to provide a normal pulmonary ventilation without discernible motion of the chest or diaphragm and also with disappearance of the voluntary impulse to breathe; it was evident that a degree of lung rest of both lungs and the laryngotracheobronchial tree had been produced which had been impossible of accomplishment with bed rest or other procedures previously used in the treatment of pulmonary tuberculosis.[1] The early encouraging results of this principle of therapy in bilateral advanced disease were then described.[2] Since that time, clinical reports have appeared which indicate that the maintenance of this type of lung rest for a period of four to five months, approximately ten hours daily, resulted in some cases in clearing of exudative lesions and in others in closure of cavities that had resisted other methods of treatment.[3] A follow-up report will be given of 6 of 11 cases of bilateral advanced disease in which arrest of the disease was the consequence of chamber therapy and, in addition, the early observations in a recent consecutive series of 11 patients with chronic pulmonary tuberculosis in 9 of whom closure of cavity with negative sputum took place after a single course of treatment.

The mechanism by which local immobility of the lungs was achieved was the outcome of the development of a method of equalizing the air pressure on both surfaces of the thoracic wall and diaphragm. Alternating positive and negative pressure, 55 to 65 mm. of mercury above and below the atmosphere twenty-five to twenty times a minute, produces a variation in the density of air in a chamber by which ventilation of the lungs of the enclosed patient is achieved. In order to prevent expansion and compression of the chest wall during the initial phases of the positive and negative cycles of pressure, the resistance in the respiratory passageway from the nose to the alveoli had to be accurately and simultaneously counterbalanced.[1b] This was originally accomplished by a chamber within a chamber, but now more simply by a partition around the neck of the patient which is lowered to produce differential pressures between 4 and 8 cm. of water, as required to overcome the tracheobronchial resistance in the individual case. In patients with bronchial asthma, pulmonary emphysema and pulmonary fibrosis, in whom decided narrowing of the bronchial tree has taken place, the relatively rapid compression and expansion of the air entering and leaving the lungs cannot be delayed to the degree necessary to obtain equal pressures inside and outside of the chest and, therefore, to obtain complete arrest of chest movement. During the first week of residence in the equalizing alternating pressure chamber the patient generally learns to renounce all voluntary respiration and from then on resides in the chamber without conscious desire to breathe and with complete arrest of chest movement.

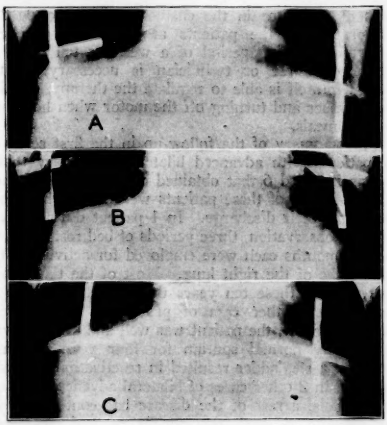

Fig. 1.—*A*, chest movement during quiet breathing revealed by blurring of margins of lead crosses. *B*, degree of chest movement shown by change of position of lead crosses on inspiration and expiration. *C*, absence of chest movement shown by sharp outline of lead crosses during continuous roentgen exposure for ten minutes.

In studies recently carried out, Eastlake and his co-workers[4] have demonstrated the absence of chest movement during residence in the chamber by means of roentgenographic pictures of lead crosses placed on the anterior surface of the thorax. A blurring, or two different positions of the lead crosses, are shown by continuous roentgen exposure on the same film during normal breathing and on two exposures on the same film during inspiration and expiration. However, as seen in figure 1, a ten minute continuous exposure

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Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

1. (*a*) Barach, A. L.: The Treatment of Advanced Pulmonary Tuberculosis by Continuous Arrest of Lung Movement Produced by Residence in an Equalizing Alternating Pressure Chamber, Tr. A. Am. Physicians **55**: 98, 1940; (*b*) Immobilization of Lungs Through Pressure, Am. Rev. Tuberc. **42**: 586, 1940.

2. Barach, A. L.: Continuous Arrest of Lung Movement: The Treatment of Pulmonary Tuberculosis in an Equalizing Alternating Pressure Chamber, Am. Rev. Tuberc. **42**: 56, 1941; footnote 1a.

3. (*a*) Barach, A. L.: Immobilization of Both Lungs: The Treatment of Pulmonary Tuberculosis in an Equalizing Pressure Chamber, Am. Rev. Tuberc. **52**: 122, 1945; (*b*) Physiologic Therapy in Respiratory Diseases, Philadelphia, J. B. Lippincott Company, 1948. (*c*) Cullen, J. H.; Myers, R. K.; Herben, G. F., and Barach, A. L.: Closure of Cavities in Pulmonary Tuberculosis Produced by Immobilization of Both Lungs, J. Chest Dis. **14**: 345, 1948. (*d*) Bellis, G. L.: Use of the Equalizing Pressure Chamber, read at the Joint Session of the Sanatorium Superintendent's Association and Sanatorium Trustees' Association, Sept. 13, 1947. (*e*) Eastlake, C., Jr., and Gary, J. A.: To be published. (*f*) Eastlake, C., Jr., and Barach, A. L.: Closure of Tuberculous Pulmonary Cavities as Accomplished by Residence in the Equalizing Pressure Chamber, to be published. (*g*) Barach, A. L.: Continuous Immobilization of the Lungs by Residence in the Equalizing Pressure Chamber in the Treatment of Pulmonary Tuberculosis, Dis. of Chest **12**: 3, 1946; (*h*) Immobilization of Both Lungs Produced by the Equalizing Pressure Chamber with Results of Treatment in Pulmonary Tuberculosis, Ann. Int. Med. **26**: 687, 1947.

4. Eastlake and Gary.[3e] Barach, A. L., and Eastlake, C., Jr.: Closure of Tuberculous Pulmonary Cavities as Accomplished by Residence in the Immobilizing Lung Chamber, Tr. A. Am. Physicians, to be published.

on a film during residence in the equalizing pressure chamber revealed no blurring of the margins of the lead cross, indicating absence of discernible chest movement.

During residence in the equalizing pressure chamber the patient manifests a form of continuous body rest as well as lung rest, which is impossible of achievement by patients with voluntary respiration at bed rest. The degree of physical and mental relaxation obtained is generally striking. There is also highly suggestive evidence of a decided decrease in the diffusion functions of the lungs, because of the absence of respiratory effort and the diminution in over-all metabolism and oxygen consumption. The pulse rate is diminished 10 to 20 beats per minute, the systolic blood pressure is lowered 10 to 15 mm. of mercury and the temperature in afebrile patients often 1 degree (F.) less during respiration without lung movement. The other side effects of the treatment include an alternating pressure on the ear drum and sinuses, neither of which interferes with the treatment, as these sensations are not found to be disagreeable or uncomfortable after two or three days of residence in the chamber. The morale and cooperation of the patients are generally excellent. After the training period of a week or ten days, no attendant, nurse or technician is necessary, as the patient himself is able to regulate the therapy, opening the chamber and turning off the motor when he comes out for meals.

The summary of the follow-up in the first series of 11 patients with advanced bilateral pulmonary tuberculosis included 6 that obtained clinical arrest of their disease. Two of these patients were lost sight of one year after their discharge. In 1 patient during eleven years of observation, three periods of bed rest for three to four months each were employed for activity in the upper lobe of the right lung. Most of the time, however, during these ten years the patient had been at work. In another case of previously far advanced bilateral disease, the patient was well and at work with consistently normal sputum for four years, when a fall from a stepladder resulted in reactivation of tuberculosis. In 2 other cases of bilateral advanced cavitary tuberculosis, arrest of the disease has continued with the patients at work the greater part of five years in 1 patient and six years in the other, with consistently negative reactions to sputum smears and culture.

In 1 case in which recurrence of cavity took place after lung rest treatment, while the patient was at bed rest in a municipal hospital, a subsequent course of chamber treatment was followed by closure and healing of a large cavity in the upper lobe of the left lung. The reactions to sputum and gastric tests had been invariably negative during the six years prior to reporting. In another case, three courses of therapy were required to effect final closure of cavities in the upper lobes of both lungs. In these 2 patients inhalation of promin® (sodium P,P'-diaminodiphenylsulfane-N,N'-didextrose sulfonate) aerosol were given just prior to cavity closure, during the fourth and last month of treatment. Whether or not promin® had a favorable influence in effecting a more permanent type of cavity healing cannot be determined, but chemotherapy during the final period of shrinkage of the cavity by lung rest therapy deserves study. The response in these patients, and others, clearly demonstrated the specific factor of lung rest in effecting cavity closure, as contrasted to the ineffectiveness of continued bed rest in this type of case.

In a recent series of cavitary pulmonary tuberculosis, in 9 of 11 patients closure of cavity developed, with negative sputum, after a single course of four to five months. The clinical histories of 7 of these patients have been reported by Cullen, Myers, Herben and Barach.[8e] Six patients in the group had been previously treated with pneumothorax, 4 without effective collapse. In 2 cases the cavities had been collapsed by bilateral pneumothorax for five and six years, but reappeared after termination of pneumothorax. Although these cavities had persisted with previous bed rest, closure took place in four months of chamber therapy.

Since it has been demonstrated that tuberculous pulmonary cavities persisting or reappearing after long-continued pneumothorax and bed rest have closed, with the development of negative sputum, the use of the physiologically sound principle of rest to the lungs and the respiratory tract would appear to be amply justified as an additional therapeutic procedure in the treatment of cavitary pulmonary tuberculosis. In 2 patients of the first series tuberculosis of the larynx healed during the first two months' residence in the chamber; chemotherapy was not employed.

Although a new therapy is naturally first tried in cases of advanced disease, it should not be restricted to patients with advanced disease after it has been proved to have no harmful effects and to be therapeutically effective in the majority of patients treated. The use of the lung rest chamber in early cases of exudative and cavitary tuberculosis may also be considered justifiable, especially since it has none of the hazards of collapse therapy and surgical procedures.

Healing in tuberculosis, however, cannot be considered simply a matter of lung rest, since many other factors may continue to make this single agent of little clinical value. In 1 of the cases of far advanced disease, a progressive widespread extension of disease had previously taken place with bed rest, with a rectal temperature at the start of hospitalization of 99 to 100 F. and three months later of 104.5 F. The patient was highly toxic and at the start of treatment was carried into the chamber. Although no cure of the disease was anticipated, the effect of lung rest was a fall in temperature to 101 F. after the first week and decided shrinkage of cavity with clearing of some of the lesions in two months. Immunologic resistance to the tubercle bacillus was lacking, but combined chemotherapy and lung rest therapy may in some cases effect an arrest of disease when neither method alone is adequate. Of the entire group, there were only 2 patients who failed to show some improvement, during a period when defects in the apparatus as well as in clinical and experimental judgment were not infrequent.

The closure of cavity may be seen in two illustrative tomograms, the first case (fig. 2) representing the effect of the second course of lung rest therapy in a patient who had a six year follow-up with negative reactions to gastric and sputum tests and the second case (figs. 3 and 4) the initial closure of a cavity in the midst of an area of fibrosis, in a patient who had had tuberculosis for fifteen years.

The cause of cavity closure is complex and probably variable. Cessation of recurrent inspiratory enlargement of the cavity, which may take place in many cavities during normal breathing, would appear to be a probable advantage of arrest of lung motion. A

check valve mechanism undoubtedly operates to maintain cavity in patients with a small bronchial lumen. Elimination of the check valve would appear to be a consequence of maintenance of a constant lung volume.

The answers to a number of questions concerning the use of the immobilizing lung chamber require extensive investigation. These include:

1. What is the optimal number of hours per day in which respiration with constant lung volume, i. e., without chest or diaphragmatic movements, should be maintained? Since ten hours per day accomplishes cavity closure and five hours per day appeared too little, should twelve to eighteen hours be tried?

2. Should chemotherapy be given when cavity closure is imminent?

3. Is closure of cavity by bilateral lung rest in the chamber preferable to (*a*) pneumothorax, (*b*) thoracoplasty and (*c*) routine bed rest?

Fig. 2.—Tomograms showing closure of large cavity in upper lobe of left lung after four months of immobilizing lung treatment. *A*, before second treatment. *B*, after second treatment.

4. Are there any disadvantages to trial of total lung rest therapy in chronic pulmonary tuberculosis, and if so what are they?

5. How much bed rest should follow demonstrated closure of cavity after residence in the immobilizing lung chamber?

6. Is relatively slow cycling of the apparatus 16 to 18 times per minute preferable to 20 to 26 times per minute?

7. Should the chamber be used to stabilize doubtful lesions in cases of projected thoracoplasty?

8. Should the chamber be used after thoracoplasty to stop severe paradoxic chest respiration?

COMMENT

The objectives of this paper have been: (1) to present eleven years' experience with a physiologically based therapeutic method of treating chronic pulmonary tuberculosis, a procedure that maintains normal respiration without chest or diaphragmatic motion, with complete surrender of all voluntary breathing, with consequent provision of continuous immobility of both lungs and, finally, a state of lung and body rest during residence in the equalizing pressure chamber not possible of achievement by any other form of tuberculosis

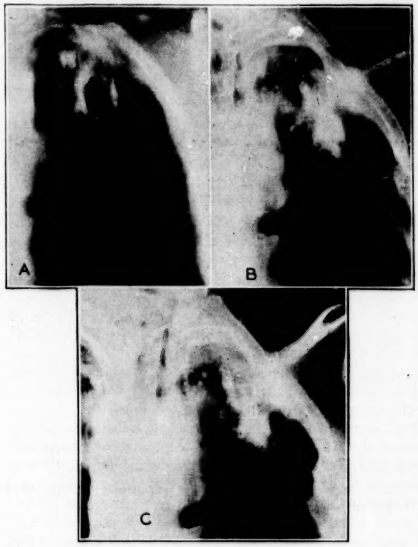

Fig. 3.—Tomograms showing progress in closure of cavity in the upper lobe of the left lung. *A*, before treatment. *B*, after five weeks of treatment. *C*, after fourteen weeks of treatment.

therapy; (2) to describe clinical evidence which supports the belief that this procedure exercises a specific effect in accomplishing closure of pulmonary tuberculous cavities, and (3) to suggest that lung rest, i. e., pulmonary ventilation with constant lung volume, be considered not as a measure of last resort in far advanced bilateral advanced pulmonary tuberculosis but as an alternative procedure worthy of trial in cases

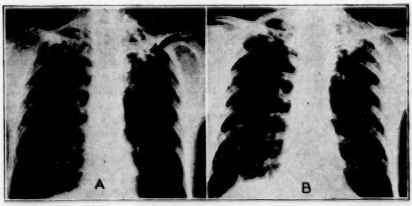

Fig. 4.—*A*, roentgenogram showing cavity in an area of long-standing fibrosis and calcification. *B*, closure of cavity after fourteen weeks of treatment.

of less advanced exudative or cavitary tuberculosis instead of pneumothorax, thoracoplasty or bed rest.

In prior publications [5] it was shown that cavities that closed during residence in the immobilizing pressure

5. Barach.[3a,b]

chamber reappeared in some instances with bed rest and were finally closed during a succeeding course of lung rest therapy in the chamber. The effect of absence of chest motion on cavity closure was shown to be a specific factor and not simply an extension of the period of bed rest. In two previous series of cases of advanced tuberculosis treated at Presbyterian Hospital by residence in an oxygen room with 50 per cent oxygen [6] and in a filtered air room,[7] clinical recovery was not obtained in a single instance, although most of the patients were quite comparable to the patients with advanced disease treated by lung rest therapy in this series.

We are aware that a new departure in the management of chronic pulmonary tuberculosis requires extensive investigation. With the opportunities that have been made available during the past eleven years, two small series of cases have been carefully studied. Pneumothorax had either been impossible of induction or ineffective in obtaining cavity closure, or cavities had appeared after termination of pneumothorax. In some of the recent cases thoracoplasty might have been ultimately employed; in the majority the bilateral nature of the disease made surgical treatment impossible. The clinical recovery that took place in 15 of the 22 cases appeared to be a specific result of lung rest when other measures had been previously shown to be ineffective. Temporary improvement took place in all but 2 of the remaining 7 cases, even in a patient with an evening temperature of 104 F. in whom extensive disease had progressively involved both lungs during bed rest. No evidence of harmful effect was detected.

From the point of view of public health, early detection of pulmonary tuberculosis as well as the use of all available remedies effective in obtaining arrest of the disease seems indicated. Since residence in the immobilizing lung chamber has been shown to result in cavity closure and negative sputum in cases of disease resistant to other methods, this method of treatment merits investigation and trial, from the point of view of preventive medicine as well as the patient himself.

SUMMARY

The effect of the immobilizing lung chamber on closure of pulmonary tuberculous cavities is described. The follow-up results in 6 patients with arrested disease out of 11 treated with bilateral advanced pulmonary tuberculosis are summarized, together with the early results of a recent series in which 9 of 11 patients with tuberculous pulmonary cavity manifested an initial arrest of their disease, with closure of cavity and negative sputum after four to five months' treatment.[8]

The use of lung ventilation without lung movement, i. e., bilateral lung rest, is presented as an alternative procedure that appears worthy of trial in exudative and cavitary tuberculosis instead of bed rest, pneumothorax or thoracoplasty. The use of the immobilizing lung chamber is a feasible and practical method of treatment for patients with chronic pulmonary tuberculosis which has none of the hazards or disadvantages of collapse therapy. The entire operation of the chamber may be conducted by the patient himself without nurse or attendant after the training period of a week or ten days has taken place.

From the point of view of public health, a procedure that results in closure of cavity and negative sputum, when other measures have been admittedly ineffective, would appear to deserve serious consideration and trial in order to have the range of its usefulness determined. A number of questions concerning the use of the chamber, such as the optimal number of hours per day and the over-all length of treatment, the possibility of the joint use of chemotherapy as well as numerous other considerations, merit extensive further investigation.

6. Barach, A. L., and Richards, D. W., Jr.: Oxygen Therapy in Pulmonary Tuberculosis, Am. Rev. Tuberc. **26**: 241, 1932.

7. Barach, A. L.: The Use of Filtered-Air Chambers in Pulmonary Tuberculosis, Am. Rev. Tuberc. **27**: 508, 1933.

8. We wish to emphasize that our use of the term cavity closure does not merely indicate that cavities have been roentgenographically lost to view but that actual closure has taken place as confirmed by bacteriologic findings, by absence of tubercle bacilli in the sputum, and by clinical evidence, ability to work without symptoms. This opinion would appear to be justified in 5 patients who for four years or more after treatment revealed no roentgenologic, bacteriologic or clinical manifestations of cavity, as well as in others observed for two or three years. The disappearance of roentgenographic signs of cavity took place during chamber treatment and not after treatment. The specific effect of lung rest was revealed in some cases by reappearance of cavity on bed rest after chamber treatment and a second disappearance and closure of cavity during a subsequent course of lung rest. When closure of cavity has been manifested for two to four years, collapse therapy is not necessarily indicated on the grounds of greater security, since thoracoplasty itself is not without certain hazards. The expense of the treatment is moderate when chamber cost is calculated on a rental basis, since many patients use a chamber over a period of many years. The electric current expense is nominal and no attendant or nurse is necessary.

ABSTRACT OF DISCUSSION

Dr. G. L. Bellis, Winnebago, Wis.: At Sunny View Sanatorium, a public institution for the treatment of tuberculosis, we have been privileged for the past fifteen months to test the therapeutic value of Dr. Barach's lung immobilization chamber. The cases selected for "total lung rest" treatment were of the far advanced bilateral cavitated type, with definitely unfavorable prognosis. With but one chamber at the beginning, it was deemed expedient to divide the twenty-four hour day into periods of four hours, prescribing for each patient either one or two periods, depending on the exigency of the case. An additional chamber, installed four months later, doubled our facilities. Fourteen patients have either completed or are now undergoing lung immobilizing treatment, permitting the following preliminary report to be made: The disease in 3 of the earlier cases, after 1,200 to 1,500 hours of lung immobilization have been given, is now classified as apparently arrested, with the patients taking half-hour walking exercise each day and about ready for discharge from the sanatorium; 3 other patients show persistently normal sputum on microscopic examination and give every promise of recovering; 1 of the group reported on gained sufficient strength in the chamber to undergo a successful pneumonectomy, and another is now awaiting transfer to the general hospital for a lobectomy in order to have a residual tension cavity eliminated. Four of the remaining 6 patients are continuing treatment and show decided symptomatic relief, but too short a time has elapsed to evaluate results, while in 2 patients in the preterminal stage treatment has failed to change the course of the disease. In none of the cases referred to was it necessary to exclude other indicated therapeutic measures. It is perhaps too early and the number of patients treated too few to arrive at definite conclusions. However, based on our observations, I feel that the benefits to be confidently expected from strict bed rest in the treatment of pulmonary tuberculosis are multiplied by use of the lung immobilization chamber. Symptoms of toxemia are promptly brought under control; patients with hemorrhage cease their periodic spills; pleuritic pain is dramatically relieved, and there is, soon after the start of treatment, roentgen evidence of a tendency toward cavity closure—surely a decided advance in results to be obtained in applying the principle of curative rest. Any treatment that will definitely cut down the length of time necessary to secure an arrest of the disease will be a welcome blessing to patients and worthy of the highest praise. Dr. Barach's chamber, in my opinion, possesses that potentiality.

PRURITUS ANI et VULVAE

Report of 520 Consecutive Patients with Eczema of the Anal and Vulval Regions

HOWARD HAILEY, M.D.
Atlanta, Ga.

In this report, of a large number of patients, I propose to add further strength to support the apparent fact that pruritus ani et vulvae is a subjective symptom of eczema and not an entity. In two previous published papers on this subject I attempted to emphasize the importance of heredity as a causative factor and the presence of eczema elsewhere, before, during or after an attack of pruritus ani et vulvae as supporting evidence in the diagnosis of eczema of the anal and vulval regions.

It would be foolhardy were I to attempt to influence physicians to discontinue the use of the phrase "pruritus ani et vulvae." This phrase is like the poor, in that it has always been with us and most likely will continue. However, one should not make an entity of a symptom.

Fleeting, occasional itching of any region of the body when unaccompanied with visible cutaneous lesions is not true eczema. Patients who make this complaint are not considered in this report.

The cause of eczema of the vulval, anal and scrotal regions depends on two factors. The first is an indirect

Fig. 1.—Eczema of the vulva, as shown by corrugated infiltrated appearance of the labia.

cause and is the result of an inherited hypersensitiveness or allergy. The second factor is the direct cause or excitant.

The indirect cause in the patient may have followed one of the common manifestations of hypersensitiveness other than eczema in one or more close blood relations in either or both parents or their immediate ancestors and side relations. The more commonly associated manifestations of hypersensitiveness are asthma,

Fig. 2.—Eczema of the vulva and anal region, showing the sodden infiltrated patch on left labia and to the left of the anus.

hay fever, urticaria, migraine, arthritis, sinusitis, pyelitis, cystitis and colitis.

The direct or excitant cause of an attack may be (1) chemicals (drugs, cosmetics), (2) clothing, (3) hemorrhoids, (4) diet, (5) heat, perspiration and friction, (6) atmospheric conditions or (7) emotions.

Fungous infections have no place in this discussion. An experienced physician will not be confused regarding fungous causation.

Eczema of the vulval and anal regions may attack at any age. The average age of the patients in this series was 43.52 years. The youngest patient was 4 years old. She had severe eczema; also she had eczema elsewhere on the body. Her mother had hay fever, and her maternal grandfather and grandmother had eczema. The oldest patient was 86 years old.

In this series of 520 patients whom I have observed and treated during the eleven year period prior to reporting, there was only 1 Negro (mulatto). She was 64 years old and well past menopause; she did not come from the Atlanta area.

The incidence of "pruritus ani et vulvae" in decades is as follows: Up to 10 years of age there were 2 patients; 10 to 20 years, 9 patients; 20 to 30 years, 69 patients; 30 to 40 years, 145 patients; 40 to 50 years, 116 patients; 50 to 60 years, 110 patients; 60 to 70 years, 50 patients; 70 to 80 years, 17 patients, and 80 to 90 years, 2 patients.

Thirty and three-tenths per cent of the patients had the disease for six months or less, 13.85 per cent six to twelve months, 30.75 per cent one to five years and 25.10 per cent five years or longer.

There have been three instances of mother and daughter with pruritus ani et vulvae being treated at the same time. A number of patients stated in their histories that a sister or mother and sister suffered from the same complaint.

Read before the Section on Dermatology and Syphilology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

Formerly Associate Clinical Professor of Dermatology, Emory University School of Medicine; Dermatologist, Georgia Baptist Hospital, Crawford W. Long Hospital, Emory University Hospital and Egleston Memorial Hospital for Children; Consulting Dermatologist, Oliver General Hospital, Augusta, Ga.

Several instances occurred in which husband or wife stated that the spouse had the same trouble. Of course, each thought that he or she had contracted the trouble from the other. In this series 342 patients were female and 178 male.

There was a history of one or more manifestations of hypersensitiveness (allergy) in the family in 65.63 per cent of the cases. Here again, this is a high percentage when one considers that many patients did not know their grandparents or even one or both of their parents. So often parents had died before the patient was old enough to make reliable observations. Then too, often the patient was an adopted child—hence the absence of a history of eczema or related manifestations of hypersensitiveness.

In the series, 84.94 per cent of the patients had eczema elsewhere on the body when they presented

Fig. 3.—Chronic infiltrated eczema with multiple abrasions. The prognosis as to permanent cure is very poor.

themselves, or they had had eczema before the attack of "pruritus ani et vulvae."

Three patients had "pruritus scroti" as well as "pruritus ani."

Eczema of the anatomic parts under discussion have the usual signs and symptoms as eczema elsewhere. The signs and symptoms vary as to whether the attack is acute or a recurring chronic one. Complications in eczema of the regions under discussion are those found with eczema elsewhere. Heat and moisture enter into the initiation of the attack and also delay healing.

The commoner complications are abrasions, fissures, secondary infection and abscesses. Keratoses and occasional epitheliomas follow overirradiation or may appear in the absence of a history of irradiation. Frequently leukoplakia is present. Kraurosis is a name for the end result of long-standing chronic eczema of the vulva and might also well refer to the anal region so affected. When the stage of kraurosis has been reached, the skin has become fibrotic and the skin appendages have disappeared through atrophy.

Insomnia, nervousness and loss of weight are followed by physical exhaustion and mental depression which sometimes becomes serious.

Fig. 4.—Vulvectomy performed on the patient seen in figure 3. This radical procedure failed to effect a cure.

TREATMENT

Surgical treatment is not indicated, but, in fact, is contraindicated in the management of eczema of the anal and vulval regions, except in a limited number of patients who are suffering from concomitant symptoms

Fig. 5.—This illustrates overirradiation. Atrophy, loss of hair, telangiectases, keratoses and epithelioma followed.

producing hemorrhoids. Cutaneous tests for allergy have no legitimate place in the diagnosis and treatment of eczema, and the practice will probably be discontinued in the near future.

Periods of rest and even complete rest in bed are necessary to give relief to some patients. Frequently sedation is indicated. A change of environment is desirable when the patient is at odds with one or more other members of the family. Cold damp compresses are indicated in the acute stage of eczema. Ointments usually aggravate instead of alleviate the condition. Advice as to the clothing and withdrawal of cosmetics —powder, perfume and especially nail polish—are among the important details in the successful management of eczema of the anal and vulval regions.

Saline douches are of great value. A cold quartz lamp is valuable in treatment. Roentgen therapy continues to be the best single treatment in the quick relief and cure in the majority of patients with this condition. The physician who administers roentgen rays should be well trained. The physician who gives roentgen treatment in a careless way must expect trouble sooner or later. No roentgen rays should be administered to a patient who has previously had treatment until a record of the treatment has been obtained. Roentgen rays properly given are of no danger to the sex organs. However, some physicians will continue to use a tampon and deny the patient the benefits of roentgen treatment. Ill advice to the effect that roentgen rays will damage her organs, cause sterilization and prevent pregnancy temporarily pacifies the patient until the nervous tension drives her to seek help elsewhere.

SUMMARY AND CONCLUSION

A study of 520 patients under treatment for pruritus ani et vulvae during the eleven year period prior to reporting convinced me that all of them had or have eczema. The cause of eczema is twofold, namely, an indirect cause provided by heredity and a direct cause provided by some excitant from without or within the body. The presence of bacteria, yeasts, fungi and amebae in the vagina and at the anal skin juncture are practically always saprophytic and not pathogenic as related to eczema. So-called cutaneous tests for allergy have no place in the management of eczema.

Atlanta, Ga., has a Negro population of approximately 120,000, but I have not seen a single Negro patient from the area with eczema of the anal and vulval regions.

Approximately 66 per cent of this series were female and 34 per cent were male. There were 65.63 per cent who gave a history of one or more manifestations of hypersensitiveness (allergy) in the family and 84.94 per cent who had eczema elsewhere on the body on their first visit or had had eczema elsewhere prior to the attack of "pruritus ani et vulvae."

A study of the incidence of the disease indicates that the menopausal period is not a dominating factor. The decade incidence does indicate that eczema of the anal and vulval regions is commonest during the active working period of the patient's life. Recurrences and relapses are common, but if the patient cooperates and strict attention is paid to the details of treatment, relief and clinical cures for periods of years may be expected in the vast majority of patients suffering from "pruritus ani et vulvae" or eczema of the anal and vulval regions.

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ABSTRACT OF DISCUSSION

DR. G. A. GRANT PETERKIN, Edinburgh, Scotland: I will mention first the points with which I disagree. I cannot subscribe, for instance, to the view that pruritus ani et vulvae is merely a form of eczema, although eczematous changes are frequently present. The name pruritus means merely itching, and itching of the anal and vulvar regions may be produced by a vast variety of causes. In 107 cases in 1946 referred to me as cases of pruritus ani et vulvae there were such different conditions as psoriasis, condylomata acuminata, condylomata lata, carcinoma cutis, lichen planus, amoebiasis, prurigo nodularis and tuberculous sinuses. Also, there are persons suffering from severe pruritus ani et vulvae in whom no cutaneous changes are apparent but in whom this intense itching has been present over a prolonged period. Certainly the skin of most patients shows an eczematous reaction, but this reaction may be due to many different causes, such as atopic dermatitis, infectious eczematoid dermatitis, flexural seborrheic dermatitis and fungous infections, either tinea or infection due to Candida albicans, which may be easy enough to diagnose but which may, on the other hand, offer great difficulties in diagnosis. I consider the role of the gynecologist most important and frequently obtain the benefit of his advice, as cervicitis and trichomonal infection may be present and the yeast organisms may also attack the vagina. Dr. Hailey mentioned that approximately 66 per cent of his series were women and 34 per cent men. In my small series of 107 cases, 67.3 per cent were women and 32.7 per cent men—a similar figure. Like Dr. Hailey, I was somewhat surprised to find that in my cases the age group with the highest incidence was that between 30 and 40 years of age, as one somehow tends to believe that pruritus ani et vulvae is most frequently seen in persons past middle age. However, it is possible that many women over 40 seek advice from the gynecologist rather than the dermatologist. Finally, I make a plea even more compelling than Dr. Hailey's against the indiscriminate use of roentgen rays in this condition. All dermatologists know how effective this therapy is in the average case, but one should first make every effort to discover the exact cause of the itching, e. g., contact eczema due to medicated toilet paper and purgatives, before commencing it. One should bear in mind the lot of persons suffering from both the pruritus and radiodermatitis. Starch poultices will usually tide the patient over a crisis better than roentgen rays, while for patients with the unfortunate combination of radiodermatitis and pruritus, I do not know a better treatment agent than thorium X.

DR. JAMES HERBERT MITCHELL, Chicago: I find it impossible to generalize about pruritus ani et vulvae. First of all, one must make all kinds of investigation in order to determine what the causative agent is. Failing to find anything, one has only an itching that is an irritation of the nerve endings of the region. During the war, I had a tremendous increase in cases involving war mothers and war brides. It is the number one problem in the private practice of dermatology. All sorts of things must be looked for, and I do not agree with Dr. Hailey, in the least, about the patch test. Also, Dr. Peterkin has called attention to the fact that it is very necessary to make cultures and to exhaust the possibilities of investigation. A number of years ago, I published an article in THE JOURNAL on the production of pruritus and dermatitis ani by anusol® (a mixture of bismuth oxyiodide and resorcinol sulfonate in a fatty base) suppositories. There is a strong reaction in persons who are sensitized to resorcinol. A case that occurred in my practice some years ago was that of a woman of 35, previously divorced, who had been married for three months and had been having a good deal of trouble in the vulval region. The region was stained with Gibson's picrate ointment. She had been in the hands of a very competent colleague and had been given patch tests to all the medicaments, the reactions to which were negative. Eventually I found that her husband, a veterinarian, had been using an ointment on his hands each night for three months. Patch testing with this ointment gave a violent reaction.

DR. STEPHEN ROTHMAN, Chicago: What has been said about hereditary influences seems important in the interpretation of pruritus ani et vulvae. It appears that it is a particular genetically induced state which makes a person an "atopic" or a "neurodermatitis" type. There are certain attendant somatic and psychic stigmas. Among the somatic stigmas are the susceptibility to itch stimuli, the great tendency to lichenification in response to scratching and multiple dermal sensitivities. I agree with Dr. Hailey that the sensitivities never have been proved to have any etiologic significance. A study of the material of the University of Chicago Clinics was published in *Gastroenterology* in September 1945. Fifty-five per cent of 70 patients with pruritus ani were atopic, whereas the remaining 45 per cent did not have lichenification, and the perpetuation of the itching-scratching circle had a different mechanism than in atopic persons. In both forms banal external irritation, such as the cleansing with toilet paper, caused the onset of itching spells and contributed greatly to the persistence of the condition. The most important point in the reform of the hygiene of the anus has been the avoidance of rubbing, the rubbing being defined, as I explain to my patients, as a "round trip movement of the hand." This could be best achieved by sitz baths and drying by patting. In addition to measures directed toward avoidance of external itch stimuli, one can successfully decrease the state of itching hyperexcitability by measures acting both on the central nervous system and on the periphery. The combined treatment method, as outlined in the paper previously mentioned, was successful in 93 per cent of the 50 patients on whom a follow-up could be made.

DR. ADOLPH ROSTENBERG JR., Chicago: I agree with the speakers that pruritus ani et vulvae is an important clinical problem. However, I feel, as does Dr. Peterkin, that one must make an assiduous search for the specific cause in a given case. It seems to me that one will not make much progress if one labels all these conditions, as Dr. Hailey apparently has done, eczemas. Eczema, to me, is a morphologic reaction pattern which can arise from a myriad of causes, and knowledge is not gained by one's calling the conditions eczemas. A word as to kraurosis. If I understood Dr. Hailey correctly, he said that some cases of kraurosis arise on the basis of an eczema. It is difficult for me to believe this, as kraurosis is an atrophic condition. There is considerable evidence that it is or stems from lichen sclerosus et atrophicus. It seems to me that the reason for the sex distribution, two-thirds female and one-third male, is obvious; after all, the title of the paper is "Pruritus Ani et Vulvae."

DR. HOWARD HAILEY, Atlanta, Ga.: I sent a copy of my paper prior to this meeting to Dr. Peterkin and to Dr. Mitchell, and, from their discussion, apparently they did not read the paper. The causes of itching of the vulva and perianal region were purposely not included in this paper. If anyone gained the impression that I was condemning patch testing as an aid in diagnosis, I am sorry. I am strongly in favor of patch testing. I know that Dr. Mitchell finds patch tests most valuable. I read a paper on eczema, eczema of the vulval and anal regions, 3 cases in the scrotal region, and I tried to emphasize that contact dermatitis, intertrigo (diabetes, etc.), fungous infections, pinworms and the like were not considered in this paper. It is hoped that only eczema and eczema with complications will be kept in mind so far as this presentation is concerned.

Hodgkin's Disease and Tuberculosis.—In spite of repeated attempts to connect Hodgkin's disease etiologically with some form of tuberculosis, all efforts have failed and there remain but two interesting correlations. One is the often chronic inflammatory granulomatous appearance of the lesions of Hodgkin's disease, and the second is the consistently high percentage of negative tuberculin reactions in patients having Hodgkin's disease. . . . A low incidence of positive reactions to tuberculin tests also may occur with other diseases of the reticuloendothelial system (such as leukemias and lymphosarcoma) which may be caused by that system being "blocked out," with resultant anergy. . . .—Warren L. Bostick, Hodgkin's Disease, *California Medicine*, February 1949.

Special Article

HAIR AND SCALP TREATMENTS AND PREPARATIONS

A Report from the Committee on Cosmetics

NOTE.—The Committee on Cosmetics was established by the American Medical Association to study cosmetics as they are sold to the American people. The Committee examines the claims made for various preparations and determines the safety or harmfulness of cosmetics. The information accumulated is made available from time to time in reports to the public and to the medical profession, depending on the nature of the report and the technical information that it contains. These informative articles will be made available through the Association's publications such as *Hygeia* and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

The Committee also has undertaken an evaluation program which will permit the use of a Committee seal for cosmetics that meet the rules of the Committee. This program is similar to others undertaken by the American Medical Association in relation to drugs, foods and devices.—EDITOR.

Even the Federal Food, Drug and Cosmetic Act cannot protect credulous persons against extravagant and deceptive claims for hair preparations. Clever advertising maneuvers circumvent the law and imply results which are impossible.

HAIR AND SCALP TREATMENTS

Every business area has one or more offices devoted to hair and scalp treatments by persons self designated as "hair experts," "hair and scalp specialists" or "trichologists." Their business is to convince the public by various approaches that their "proved," "exclusive" or "specialized" method can prevent or cure baldness.

The advertising of these hair and scalp establishments assumes a characteristic pattern. They deal with a condition which the public has associated with health and the medical profession; they assume a professional aura which, in turn, is used to justify their so-called professional fees. The public is invited to have a "consultation," a free "scalp examination" and a "diagnosis" by a "hair expert," "specialist" or "trichologist." In fact, one firm has simply and glibly solved the problem of the cause of baldness by stating that it is due to fourteen local causes. They offer to diagnose, in a brief scalp examination, which of the fourteen is responsible for the loss of hair.

To the average nonprofessional person, these high sounding terms have a medical tang and connote scientific background and training. These self-promoted authorities are not physicians and, so far as can be determined, have no qualifications other than a full head of hair, a business brain and an appetite for easy money.

Fees in amounts equivalent to that of a major surgical operation are paid by thousands of persons yearly for futile hair-saving or dandruff-curing treatments or remedies. "The Thomas'" claim that their forty-five offices manned by the "World's Leading Hair Experts" treat an average of 1,800 persons each day, or on this basis, 640,800 persons a year. At $6 to $10 a visit, this concern has a yearly income of approximately $3,844,800.

Typical of those persons contributing to the financial success of these firms is a patron who wrote that after thirty treatments for a promised dandruff cure at a

$200 fee, he was advised that failure was due to too few treatments. Another stated that he had enrolled for a course of forty to sixty treatments to stimulate hair growth, paying in advance, thereby taking advantage of a liberal cash discount. At the end of the sixtieth treatment he was told by the "trichologist" that he needed additional treatments to further the progress already made and that if added treatments were not taken some of the gains already made might be lost. A complaint to the central office brought the reply that like physicians they were unable to predict the number of treatments necessary or the reaction of the client's scalp. Therefore, after an expenditure of $450 for treatments and take-home products, the writer indicated that his hair and scalp were in little better condition.

The methods uniformly fall into familiar patterns; rarely do they show originality in the approach. The preparations which they promote have the usual hair "tonic" formulas, which consist essentially of either an antiseptic, an irritant or a keratolytic substance.

Massage.—The hair "tonics" are usually applied with massage, which is claimed to increase the circulation, thereby stimulating cell activity and, consequently, favorably influencing the growth of hair. There is no proof that the temporary increase in blood supply to the area massaged postpones the loss of hair or in any other way influences baldness. One firm suggests the massaging of only certain areas of the scalp, supposedly at those sites where the larger blood vessels enter the scalp. Another suggests massaging with the head lower than the waist. In addition to the fact that there is no scientific basis for these theories, over a period of years actual use has proved their worthlessness.

Other firms employ mechanical devices such as electric brushes, vibrators or a suction apparatus for the purpose of increasing circulation. The failures are the same as with manual massage.

In rare instances, continued massage may produce a fine colorless fuzzy down similar to that seen on the heads of some newborn babies. Alert firms are quick to capitalize on this fact by advising their patrons to observe the condition of their scalps under a bright light for the presence of this fuzz on the theory that this is the beginning of a real growth of hair. This fuzz cannot be considered either in length or appearance to be a real growth of hair or a precursor. Frequently, after reaching a length of about ½ inch (1.27 cm.) the fuzz drops off and is not replaced. In any event, its appearance is without cosmetic value, since it is invisible except on close well lighted inspection.

Ultraviolet Rays.—No matter how illogical or unscientific the basic principles, any new treatment which has public appeal and which has any degree of practicality will eventually be tried in the treatment of baldness. Therefore, ultraviolet lamps enjoy some popularity. In trained hands, ultraviolet rays have some usefulness, but only those whose scientific background makes them capable of understanding the limited available data and the potential health hazards should undertake the supervision of such treatments.

Mail Order Hair and Scalp Treatments.—Mail order businesses function by sending directions at regular intervals through the mails; the client carries out the treatment himself. Invariably, some solution or ointment is involved as well as massage of various forms.

One under the name "Laboratories" offers to diagnose scalp conditions by microscopic examination of a few strands of hair sent through the mail. Although certain physical characteristics of the hair can be observed with a microscope, such as whether or not it is human, or dyed, or permanent waved, or contaminated with foreign matter, the physiologic condition of the scalp cannot be determined by such examinations.

HAIR "TONICS"

Drug and department stores enjoy gratifying sales of alleged hair "tonics," a term used here simply because the preparations to be discussed are on the market under this name. However, hair "tonics" is misleading since the term "tonic" has a definite meaning to the average person. The word is associated with something that is conducive to a healthy condition or to overcome a diseased condition. However, the so-called hair "tonics" simply groom the hair.

There are no magic or mysterious ingredients in these preparations. They usually consist of simple mixtures of well known drugs. Apparently, the majority of conventional products have similar basic formulas, although an attempt is often made to suggest that they contain a miracle-performing complex chemical. Among the common ingredients used are acetic acid, resorcinol compounds, salicylic acid, mercuric chloride, sulfur and betanaphthol. The chemical and pharmacologic properties of each of these drugs are well known. With these data in mind, resourceful manufacturers conjure a makeshift adjustment between the pharmacology of these ingredients and pseudoscientific facts about baldness and dandruff. The past history of each of these chemicals after repeated use in many hair preparations indicates that they are ineffective in growing or maintaining hair or in curing dandruff. Disappointment and futile expenditure of money will result from the use of hair "tonics" for these purposes, and the possibility that certain of the ingredients may cause a severe dermatitis is ever present.

Sulfonamide Drugs in Hair "Tonics".—As soon as a drug is generally accepted by the public as a cure-all, it will appear in a hair or scalp preparation. Therefore, the sulfonamide compounds are used rather widely for this purpose, in spite of the fact that intensive clinical and laboratory research records the worthlessness of these drugs in hair preparations.

Furthermore, serious dangers are involved in the indiscriminate use of these chemotherapeutic agents. A sensitivity may develop which will not only result in a dermatitis of varying degrees of severity, but also may preclude the future use of the drug should the person require it. In addition, small repeated applications of the sulfonamide compounds may enable organisms present at that time to develop a resistance to the drug, and any future infection caused by this resistant or drug-fast strain of organisms cannot be effectively treated with this particular drug. Chemotherapeutic agents should, in all instances, be used only under the supervision of a physician.

Hormones in Hair "Tonics".—For similar unsound reasons, hormones, which have also been widely accepted by the public as cure-alls, are found in some brands of hair "tonics." Evidence is lacking that hormones applied in any form to the scalp will influence the growth of hair in ordinary baldness.

True, there is some association between hormones and the normal amount and distribution of hair,

although its exact nature has not been definitely established. Under no circumstance should hormone therapy be used unless definite evidence of a hormone dysfunction prevails. Such dysfunction is not diagnosed solely on the basis that the person has lost or is losing his hair. Because the hazardous potentialities of hormones are still not completely determined and, in particular, the effects of frequent small amounts not definite, the topical use of hormones in cosmetics is to be condemned. Hormones are absorbed through the skin and, in large enough amounts, can cause systemic changes.

Vitamins in Hair "Tonics."—Vitamins do not influence ordinary baldness. A newspaper report recently stated that a foreign university had conducted studies on the injection of vitamin B into the scalp in cases of baldness, with some success. Scientific reports in this regard are lacking.

Charlatans invariably recognize the potentialities of newspaper statements of this type, regardless of source or authenticity, and make them the basis of a business venture. Injections of this nature into the scalp can have disastrous results.

In fact, the injection of any substance into the scalp is a highly questionable and risky procedure, since the amounts of subcutaneous fat and the thickness of the muscular layers are not conducive to absorption of a foreign substance. In addition, only substances of carefully controlled sterility and physical characteristics can, with any degree of safety, be injected.

Hair "Tonic" Advertising.—The advertising of hair "tonics" makes a concerted effort to create a "bald" conscious public. The tenor of advertising revolves about the cause, control and cure of baldness with such picturesque language as "growth-choking dandruff," "strangled hair follicles" and "dandruff is Nature's warning signal." In some instances, the advertising claims are so blatantly misleading and false that the Federal Trade Commission initiates action. In the interim, a period of time may elapse which will allow a considerable fortune to be amassed by the manufacturer, who can then nonchalantly view any government action which removes his products from the market. The disgruntled and defrauded public then views the entire cosmetics industry with suspicion and distrust.

The germ theory of dandruff is popular and is adroitly adjusted to the use of antiseptics in hair "tonics." For some time, people were rinsing their mouths with a hair "tonic," since listerine® offered the same formula for its mouth wash and its hair "tonic." The term "antiseptic" is a good selling word, because it connotes to the average reader a protection against germs in general. Until such time as an organism is proved to be the cause of so-called dandruff and until such time as a drug is found which kills or inhibits that specific organism, this type of advertising is supported only by supposition.

A second theory of considerable sales appeal suggests that itchy scalp leads to dandruff which in turn is a precursor of baldness. The physiology of itching indicates that both functional and organic causes must be considered. Functional pruritus, in which there are no visible changes on the scalp, is a fairly common affliction. When attention is concentrated on the scalp during periods of inactivity, fatigue or tenseness, minimal pruritus becomes noticeable. In addition, the repeated use of drying shampoos may lead to more apparent flaking of the skin and itching which is temporarily relieved by shampooing. In those instances in which there is definite scalp disease of which itching is a symptom (not a cause) diagnosis and treatment should be relegated to a physician.

A third popular theory proposes that the use of irritants or massage increases the blood supply to the part, thereby accelerating cell activity and, concomitantly, hair growth. There is no evidence that the temporary increase in the blood supply rendered by massage or by an irritant chemical will in any way influence the course of baldness. If there were any proved basis for this theory, the blood supply can be increased simply and safely by temporarily lowering the head below the waist. Unfortunately, the chemicals used as rubefacients can cause sensitization, and their indiscriminate use may increase rather than decrease so-called dandruff.

Testimonials.—The advertising of hair "tonics" and hair and scalp treatments abounds in testimonials accompanied by "before" and "after" pictures. These statements testifying to miraculous results obtained from the use of a certain hair preparation must be viewed critically. The processes of the human body are so complex that the average person is unable to distinguish between results which are due to natural causes and those due to artificial remedies.

Testimonials can be obtained in several ways. They can be bought outright; they can be faked; often they are genuine from the documentary standpoint and have been written in good faith. These letters are usually volunteered by well meaning persons who have absolutely no knowledge of the nature of the challenging problems of the loss of hair. Most courts of law are cognizant of the limitations of the lay public in medical matters and their testimony is not accepted as evidence.

Widely used are "before" and "after" pictures showing a person with varying degrees of baldness originally, and the same person with more hair following the use of certain brands of hair "tonics." In some instances, hair grows on a previously hairless head, but not as a result of any external application or treatment. For example, about three months after prolonged febrile illnesses, severe nervous shocks or traumatic injuries, scalp hair may fall out completely or a rapid general thinning of the hair may take place. At other times, the hair falls out in patches known as "alopecia areata," or the entire head and orbital areas are left without hair. These instances can be differentiated from ordinary baldness by the lack of characteristic patterning which occurs in the latter, first in an area above each eye and at the vertex of the head; both areas eventually merge, but hair will remain at the periphery so that, regardless of the extent of baldness, regular hair cuts are still necessary.

In symptomatic loss of hair, to resort to hair "tonics" and "professional" hair and scalp treatments is unnecessary. Regrowth usually takes place due to the forces of nature and not to any external application. The human mind is so constituted that one is much more prone to give credit to artificial measures than to nature and will, through misdirected gratitude, allow testimonials to be published.

Guarantees.—These hair "tonic" businesses have, over a period of years, been exceedingly liberal in the use of guarantees in their advertising. Although no one has been successful in growing hair on a bald head, despite the frequency of guarantees to that effect, these businesses have not gone bankrupt. Two possi-

bilities serve as an answer: the guarantee, regardless of its apparent ironclad nature, is full of loopholes, and the dissatisfied purchaser rather than risk ridicule does not attempt to get his money back.

SIMPLE DANDRUFF

Dandruff is actually a manifestation of a normal physiologic process. Dead keratinized cells are constantly being shed over the entire skin surface. On the scalp, the process is more noticeable and objectionable, because the hair enmeshes the flakes along with accumulated oily secretions and extraneous debris. The varying degrees of dandruff among people may be due to obvious physical factors or to constitutional predisposition. The continuous use of synthetic detergent shampoos, excessive use of irritating hair lotions or "tonics," overeating of sugars and starches, improper hygiene and poor general health have been defined by some authorities as aggravating the shedding of dead cells.

Treatment of Simple Dandruff.—When the amount of dandruff is objectionable and without apparent specific cause, a few simple measures faithfully executed will be of considerable value in its control. Daily gentle massage of the scalp will detach loose dandruff flakes from the scalp and subsequent brushing, in addition, will remove the flakes from the hair shafts. Shampoos as often as every three or four days in soft water may be necessary. Synthetic detergents may be drying. Their use in the specific treatment of dandruff is discouraged. They have obvious advantages in hard water areas. Simple hygienic principles dictate that brushes, combs and hats should not be borrowed or lent.

If strict adherence to these measures does not produce satisfactory results, a dermatologist should be consulted. Remedies should be applied only under the supervision of a physician, since they may contain irritating or sensitizing substances.

SEBORRHEA OF THE SCALP

Seborrhea is a functional disturbance of the sebaceous glands characterized by the occurrence of an excessive discharge of sebum (oil) forming white or yellowish greasy scales on the body. This condition does not necessarily limit itself to the scalp, but may be found on the face, chest, back or entire body. The cause of this disease, which has been the subject of controversy throughout medical circles for years, remains unknown. These few facts will illustrate that seborrhea is a medical problem and like other skin diseases should be diagnosed and treated only by physicians.

The relationship, if any, between seborrhea and loss of hair continues to be a subject of controversy among dermatologists who have studied the problem for years. There is still no proof that seborrhea influences loss of hair, regardless of the fact that it is present on a majority of scalps which are losing hair. As evidence against the likelihood of its role as the cause of baldness is the fact that seborrhea invariably affects the entire scalp, and yet hair is always lost in the characteristic patterns of ordinary baldness. In addition, regardless of the extensive nature of the disease, hair is lost only from the scalp, never from the chest or other hairy areas. Women who have a severe persistent seborrhea do not lose their hair. Nevertheless, seborrhea has become a by-word in hair "tonic" and hair and scalp treatment advertising.

All treatment is temporary; the disease is chronic with periods of quiescence and exacerbation. Although frequent shampoos may control the condition in some instances, more drastic treatment with medication may be required for effective results. In any event, seborrhea is a skin disease and, as such, should be treated by a physician. The use of dandruff removers and similar preparations should be discouraged, for they often contain ingredients which are capable of causing severe skin reactions and may, in some instances, aggravate the existing symptoms.

CAUSES OF BALDNESS

The most common and disturbing form of hair loss is "premature baldness," medically referred to as premature idiopathic alopecia. Although the oldest prescription on record is for the loss of hair and earliest recorded history indicates the problems of this condition, little more is known today about the actual cause, control or cure than was known then.

Premature baldness occurs almost exclusively in men during their second and third decades without any known recognizable disease. The loss of hair occurs in a characteristic pattern; first, over each eye with concomitant or subsequent loss of hair at the vertex, with the encroachment increasing until the top of the head is without hair.

The tendency toward premature baldness is hereditary. Although the endocrine glands are known to be an influential factor in normal growth, their relationship, if any, to the loss of hair in young men remains a mystery.

Evidence of the possible influence of inheritance and endocrine factors is the fact that eunochoid and male castrates do not develop ordinary baldness. One investigator succeeded in inducing typical early baldness of the male type in such persons by administering androgenic (male) hormones. Further enlargement of the bald areas was prevented by the discontinuation of the treatment; however, this discontinuation did not promote regrowth of lost hair. In addition, the androgenic hormones were without effect on those men whose families did not have a history of baldness. In all probability, frequent washing of hair, tight hats, continual use of electric lights, hot showers, sedentary city life and similar popularized theories are without significance.

Among the changes associated with advancing years is a loss of hair referred to as "senile" alopecia. Thinning of the hair of both men and women accompanies aging; however, such thinning is more frequent in men. The problem of senile alopecia from the medical point of view is the same as that of premature alopecia, but the psychologic implications of the loss of hair in the young adult are more acute and serious.

TREATMENT OF IMPENDING BALDNESS

To create a demand for hair-raising products, the male population is bombarded with advertising which aims at making them "bald" conscious. Some, without reason, become panicky and seek medical aid or resort to hair "specialists" and hair "tonics." Unless obvious, the first consideration is whether or not the man is actually losing more than an average amount of hair. Some shedding of hair is a normal process and, following any manipulation of the hair such as shampooing, brushing or combing, a noticeable hair fall can be expected. In addition, the average adult hair line indents somewhat over the eyes, replacing the straight hairline of childhood. Although it is true that male

baldness originates in this area, many men have this normal patterning without becoming bald.

If the general health of the man is satisfactory and the loss of hair is progressive and in characteristic patterns, the condition is probably, in young men, premature idiopathic baldness or, in older men, senile baldness, referred to previously as ordinary baldness. Medical science does not know any device, substance or method which will regenerate hair lost in these conditions. Neither widely advertised salves, ointments, "tonics," ultraviolet rays, massage nor mechanical devices are effective.

Since this condition is, to the best of our knowledge, a result of constitutional factors or a combination of local and constitutional factors, a thorough physical examination should precede the diagnosis. In a few instances, a mild glandular disorder may exist which can be corrected and hair health improved. In others, diets high in sugars and starches may require modification, although the relationship between diet and hair loss is essentially speculative. The medical history of the person may reveal a recent severe physical or emotional strain which may have been responsible for hair loss. However, in any event, the diagnosis and any treatment of the conditions responsible for the progressive loss of hair are medical matters and should be entrusted only to a competent physician.

The claims of any one that he has developed a remedy for the control or cure of baldness, or that he has inherited a formula for a remedy, or that he has accidentally discovered a remedy or method, should be viewed with the greatest skepticism.

Clinical Notes, Suggestions and New Instruments

RESUSCITATION AFTER FORTY MINUTES OF CARDIAC ARREST

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True cardiac resuscitation has been defined by Fauteux [1] as "full and durable restoration, in due time to avoid eventual death, of the essential functions of a heart which has lost its power to propel blood and which, in all appearances, is unable to recover spontaneously its effective value as a pump." The same author listed the criteria of true cardiac resuscitation as follows: First, the heart must have ceased functioning as a pump, and, secondly, cardiac function must have been fully and permanently restored and life preserved. With the foregoing criteria in mind, we believe that the case about to be reported may be considered one of true cardiac resuscitation. The case is remarkable in that complete recovery followed cardiac arrest of forty minutes' duration. So far as we have been able to ascertain, such a prolonged period of arrest has been exceeded only in a case reported recently by Beck and his co-workers.[2]

REPORT OF A CASE

D. H., a white boy, 16 years of age, was admitted to The Mount Sinai Hospital on Jan. 10, 1948, complaining of cough, intermittent fever and hemoptysis of seven months' duration. Physical examination disclosed extensive atelectasis of the left lung, which was assumed to be due to some type of occluding endobronchial lesion.

On January 12 the patient was examined bronchoscopically by Dr. Joseph L. Goldman, who reported the presence of a pinkish irregular mass which extended downward, from a point just below the orifice of the upper lobe bronchus of the left lung, to fill the lumen of the left main bronchus. Microscopic examination of specimens removed during bronchoscopic examination revealed "fibrosarcoma with acute inflammation." Accordingly, it was decided to proceed with operation.

Operation was performed by one of us (A. S. W. T.) on January 16. At 7:45 a. m., the patient was given a basal dose of tribromoethanol solution (5 Gm.) by rectum, in order to keep him unaware of the fact that operation was to be performed. Atropine sulfate, 1/150 grain (0.43 mg.), was administered intravenously at 8 a. m.

Inhalation anesthesia, consisting of cyclopropane and ether, was begun by one of us (M. H. A.) at 8:10 a. m. At 8:25 a. m., an oral endotracheal tube was introduced. This was connected to a carbon dioxide absorption, circle-filter anesthetic apparatus. Operation was begun at 8:27 a. m., the blood pressure then being 150 systolic and 90 diastolic and the pulse rate 140. A cannula was inserted into one of the veins at the ankle and a slow intravenous drip of isotonic sodium chloride solution begun. The patient was in the supine position on the operating table.

The left hemithorax was entered through the fourth intercostal space, anteriorly. After opening the pleura, an area of induration was palpated near the hilus of the lung and a pneumonectomy decided on by the surgeon. Sixty milligrams of procaine hydrochloride was injected into the tubing of the intravenous drip. The pulmonary artery was dissected from the pedicle with some difficulty, doubly clamped, divided and ligated with silk. At that juncture (9:05 a. m.), the patient became slightly cyanotic. Simultaneously, there was a moderate diminution in tidal volume and moist gurgling was heard in the endotracheal tube, from which blood was noted to issue freely. In addition, the blood pressure and temporal pulse could not be elicited. The cyanosis persisted for thirty seconds and was followed by deathlike pallor; respirations ceased, and the pupils dilated widely.

The exposed heart was inspected through the unopened pericardium and was found to be beating feebly and slowly, at a rate of approximately 50 per minute. Within a fraction of a minute all ventricular action ceased, but a few weak slow contractions could be noted in the region of the left auricle. Suddenly, the left ventricle exhibited momentary diffuse uncoordinated fibrillary movements, and then all cardiac action ceased. The time interval of these observations was less than one minute.

Therapy and Sequence of Events.—1. Artificial Respiration: Artificial respiration was begun immediately, by means of intermittent manual compression of the breathing bag of the anesthetic apparatus, and was maintained at a rate of 20 to 24 per minute. One hundred per cent oxygen was employed. Repeated aspiration of the tracheobronchial tree was performed, with a catheter. Approximately fifteen minutes after the onset of bleeding, bronchoscopic examination was performed and small amounts of liquid and clotted blood were removed. For two minutes after cardiac pulsation had ceased, the patient was apneic; then occasional gasping respirations at irregular intervals were noted.

2. Cardiac Massage: As soon as the heart beat was noted to have ceased, the patient was placed in the 15 degree Trendelenberg position and manual massage of the heart begun through the intact pericardium. This was maintained at a rate of 40 to 50 per minute. In massaging the heart, the surgeon used a compressing and gliding motion which began at the apex of the heart and moved toward the great vessels. The purpose of this particular maneuver was to attempt to maintain circulation. An interesting and constant pattern of cardiac action now was noted and was repeated whenever the cardiac massage was stopped. The auricles would contract feebly three or four times while the ventricles would exhibit diffuse

From the Surgical Service of Dr. Arthur S. W. Touroff and the Department of Anesthesiology, The Mount Sinai Hospital, New York.

1. Fauteux, M.: Cardiac Resuscitation, J. Thoracic Surg. **16**: 623-639 (Dec.) 1947.

2. Beck, C. S.; Pritchard, W. H., and Feil, H. S.: Ventricular Fibrillation of Long Duration Abolished by Electric Shock, J. A. M. A. **135**: 985-986 (Dec. 13) 1947.

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ineffective fibrillary movements for a few seconds. Then all cardiac action would cease. The pattern of cardiac action was repeated constantly throughout the period of resuscitation.

3. Fluid and Drug Therapy: At the onset of the resuscitative period, the rate of the intravenous drip was increased, so that 750 cc. of citrated blood was administered during the episode. At 9:10 a. m., a mixture of 80 mg. of procaine hydrochloride and 1 mg. of epinephrine was injected into the left ventricular cavity. No alteration in cardiac action was noted. At 9:25 a. m., a mixture of 60 mg. of procaine hydrochloride and 0.5 mg. of epinephrine was injected into the left ventricular cavity, again without any effect. At 9:30 a. m., 80 mg. of procaine hydrochloride was injected into the tubing of the intravenous drip.

At 9:45 a. m., it was decided to incise the pericardium, in order to apply a dilute solution of procaine hydrochloride directly to the epicardium and also perform more effective cardiac massage. Accordingly, the pericardium was grasped with a hemostat and strong traction exerted, in preparation

Photograph of the patient prior to discharge from the hospital (Jan. 30, 1948).

for incising the pericardial sac. At that juncture, the heart gave a sudden tumultuous extremely forceful beat and regular sinus rhythm was restored. Respirations returned promptly, the rhythm and tidal volumes being normal. The patient's deathlike pallor disappeared, and the pupils contracted considerably. The systolic pressure was found to be 100 mm. of mercury; the temporal pulse could be detected readily, and the rate was found to be 130 per minute.

In view of the fact that the pulmonary artery already had been divided, there was no alternative but to proceed with operation as rapidly as possible. During the remainder of the procedure, the patient's color was good; his systolic blood pressure ranged between 90 and 100 mm. and the pulse rate between 120 and 140. Pneumonectomy was completed at 10:45 a. m., the patient leaving the operating room in satisfactory condition.

Postoperative Course.—When he was returned to his room the patient's pulse was regular and strong. Slight cyanosis, which was present, was relieved by 100 per cent oxygen administered through a BLB mask. The patient was totally unresponsive and remained so until 9 p. m. that evening. At that time, he began to move all extremities and opened his eyes; he was incontinent of urine and feces. At 11 p. m. he began to speak and ask for water. His color was good; respirations and pulse were normal. The blood pressure was 110 systolic and 70 diastolic.

First Preoperative Day: In the morning, the patient was found to be rather somnolent, but responsive when called by name. Cursory neurologic examination revealed a bilateral Babinski reflex to be present. By evening the patient responded actively to orders and questions; he complained of vertigo and thoracic pain. By this time he was taking fluids well and had complete control of the rectal and vesical sphincters. No respiratory or circulatory disturbances were noted.

Second Postoperative Day: The patient's general condition was good. There was considerable emotional irritability. He responded rationally to all questions, but his speech was thick and slurred.

Fourth Postoperative Day: The patient's physical condition was good. Results of a careful neurologic examination were entirely negative. His speech was a little clearer; but memory, for recent and past events, was impaired. He was still emotionally labile. Orientation as to time and place was fair. Simple mathematic computations were well performed.

Fifth Postoperative Day: An electrocardiogram revealed sinus rhythm with low voltage of the T wave in leads 1 and 4; this was considered abnormal. Electroencephalographic observations showed an almost continuous and diffuse, but not quite symmetric, delta activity with frequencies as low as 1.5 per second; there was no focus. This was interpreted as due to severe diffuse cerebral dysfunction, as occurring in a great number of clinical conditions, such as multiple abscesses and encephalitis.

From the fifth postoperative day onward, the patient showed rapid improvement. By the eighth postoperative day he was out of bed. His speech, emotional stability and cerebration were decidedly improved. The electrocardiogram on that day was unchanged. By the twelfth postoperative day (January 28) the patient's recovery appeared to be complete and an electroencephalogram showed a large amount of diffuse and almost symmetrical activity (4 to 6 per second), appearing without focal accentuation. This was assumed to be due to a moderate degree of diffuse cerebral dysfunction without evidence of focal pathologic change in the cerebral hemispheres. The record was considered closer to normal than the previous one.

The patient was discharged on the fourteenth postoperative day (January 30), with the wound healed and in very good general physical condition (figure). Approximately two weeks after discharge, the patient was readmitted for a short period of observation. His emotional and mental reactions were normal; he was gaining weight and feeling well. An electrocardiogram, taken during this admission, revealed no definite abnormality. The patient was seen again, approximately four weeks later. At that time he had gained 33 pounds (15 Kg.) in weight and his condition was excellent. The electrocardiogram still was normal. The electroencephalogram revealed a small amount of diffuse and symmetric activity (6 per second) without focal accentuation. This was much less abnormal than the previous tracing. This type of record was considered indicative of a mild degree of diffuse cerebral dysfunction, as occurring in numerous conditions, (e. g., toxic states, encephalitis).

On March 10 the patient was again given a bronchoscopic examination by Dr. J. L. Goldman; a projection of tissue was observed on the posterolateral wall of the stump of the left main bronchus, approximately 3 cm. from the carina. A biopsy specimen was taken; the pathologist reported a mucosal fragment infiltrated by fibrosarcoma.

On March 22 a left exploratory thoracotomy and amputation of the stump of the left main bronchus were performed with nitrous oxide-oxygen-ether orotracheal anesthesia. The operation and anesthesia were uneventful; the patient left the hospital April 1.

The patient was seen again on November 4. His health was excellent; he was entirely free of symptoms. The electrocardiogram and electroencephalogram taken on that day were normal.

COMMENT

The occurrence of cardiac arrest in this case is best explained by a vagovagal reflex arising from active manipulation of the left pulmonary hilus and from irritation of the bronchial mucosa by intrabronchial hemorrhage. Adams and Hand [3] have emphasized factors of premedication, anesthesia and hypoxia in the production of increased vagal excitability; all these factors were present in our case.

It might be well to investigate the reason for this recovery which was remarkable not only because regular cardiac rhythm was restored forty minutes after cessation of the heart beat but also because the patient made a complete recovery. The primary therapeutic measures employed were cardiac massage, artificial respiration and the administration of procaine hydrochloride and epinephrine, both into the heart and intravenously. These, and some other measures available for cardiac resuscitation, will be reviewed briefly.

1. *Cardiac Massage.*—This is the prime factor in maintaining life until effective spontaneous cardiac action is restored. At the present time manual compression of the heart is the only means of maintaining some degree of circulation and cardiac output. Gunn [4] demonstrated experimentally that a dye injected into the right ventricle of an arrested heart appears in the lungs and carotid artery after a few cardiac compressions. Dripps and his co-workers [5] stated that proper cardiac massage can produce a systolic blood pressure of 60 to 70 mm. of mercury. Thus, it appears possible that cardiac massage often can maintain satisfactory cerebral circulation and that irreversible hypoxic damage to the brain can be prevented or reduced to a minimum. A moderate Trendelenberg position is advised to favor cerebral circulation.

The importance of early cardiac massage cannot be overemphasized, for only by such prompt treatment may one hope to combat the damaging effects of hypoxia on the central nervous system. Studies [6] indicate that the first three to five minutes of cerebral hypoxia, whatever the cause, are critical; after that interval irreversible cortical and medullary changes appear. Bailey,[7] on the basis of extensive experience in cardiac resuscitation, stated the opinion that it is hazardous to wait five minutes before instituting cardiac massage; he advocated initiation of cardiac massage within the third minute of the cardiac arrest when an abdominal incision is necessary to reach the heart. Nicholson [8] was even more uncompromising in his attitude and stated that the immediate institution of cardiac massage is indicated.

We are in accord with the opinion expressed by Nicholson, for we believe that procrastination constitutes a serious error in the management of these emergencies. In our case, we were fortunate in having the heart under direct observation at all times, so that no moments were lost in initiating manual compression. The sequence of events thereafter indicates clearly the effectiveness of cardiac massage, and we attribute the successful resuscitation of our patient primarily to the latter.

2. *Artificial Respiration.*—This is a therapeutic measure, the importance of which is surpassed only by that of cardiac massage. The term artificial respiration implies rhythmic insufflation of the lungs, preferably through an endotracheal tube, at the rate of 24 per minute and at a pressure not exceeding 15 mm. of mercury. The function of artificial respiration in cardiac resuscitation is twofold: first, to oxygenate blood in the pulmonary vascular circuit and, second, to aid in the maintenance of circulation. The latter point has been studied by Thompson and his co-workers,[9] who, with the aid of radioactive sodium, demonstrated the effectiveness of artificial respiration in producing movements of the blood column. In another study, Thompson and Rockey [10] observed, ". . . resuscitators employing positive and negative pressures were more efficient in circulating the blood than those employing only positive pressure and release, or negative pressure and release." Pollock,[11] in his experimental study of cardiac massage, gave support to the work of Thompson; he demonstrated with excellent kymographic tracings that, in the presence of cardiac standstill, rhythmic insufflation of the lungs produces a transmitted pulse and minor fluctuations in blood pressure.

3. *Drug Therapy.*—It is traditional that the aforementioned treatment of cardiac arrest be supplemented by the parenteral administration of a variety of drugs, such as epinephrine and related sympathomimetic amines, nikethamide and digitalis preparations. Such therapeutic measures not only are wasteful of precious moments but are of decidedly questionable value, if not positively harmful when used indiscriminately. The use of digitalis preparations has no place in cardiac resuscitation. The fact that the full therapeutic effect of such drugs becomes manifest only in two or three hours after intravenous administration should be sufficient to eliminate them from consideration in these emergencies.[12] The use of nikethamide, as suggested by some,[13] is open to serious question; certainly, the stimulating effect which it may exert on an already depressed respiratory center may prove harmful. As for the effect of nikethamide on the heart, there is considerable doubt as to its value. In fact, recent studies [14] suggest that it may be deleterious.

The traditional intracardiac injection of epinephrine is now subject to criticism, and a reevaluation of this measure is necessary in the light of experimental and clinical observations. Bailey,[7] in his series of 40 cases of cardiac resuscitation, observed that not once was intracardiac epinephrine of value. (In 1 case, the prick of the intracardiac needle per se appeared to initiate regular sinus rhythm.) It is generally agreed that the intracardiac injection of epinephrine, through the unopened chest, is hazardous, since one usually is ignorant of the precise nature of the cardiac arrhythmia, e. g., cardiac standstill or ventricular fibrillation. In the presence of ventricular fibrillation, epinephrine will potentiate the arrhythmia; in cardiac standstill, epinephrine may precipitate ventricular fibrillation.[1] In either case, the surgeon is ignorant of what actually is happening. When the chest is open and satisfactory observation of cardiac action can be made, the use of epinephrine is suggested to combat cardiac flaccidity and dilatation. Fauteux's [1] experience indicates that the cautious intra-auricular injection of a mixture of barium chloride (5 to 10 mg.) and epinephrine (1 to 2 mg.) is effective in restoring cardiac tone. Beck [15] advised the use of a mixture of calcium chloride and epinephrine to combat cardiac dilatation. Two injections of epinephrine into the ventricle were ineffective in our case.

Recently, considerable attention has been focused on the intravenous use of procaine hydrochloride in the prevention and treatment of cardiac arrhythmias during anesthesia and on the use of procaine hydrochloride as a protection against ventricular fibrillation.[16] A final decision concerning the value of

3. Adams, H. D., and Hand, L. V.: Twenty-Minute Cardiac Arrest with Complete Recovery, J. A. M. A. **118**: 133-135 (Jan. 10) 1942.

4. Gunn, J. A.: Massage of Heart and Resuscitation, Brit. M. J. **1**: 9 (Jan. 1) 1921.

5. Dripps, R. D.; Kirby, C. K.; Johnson, J., and Erb, W. H.: Cardiac Resuscitation, Ann. Surg. **127**: 592-604 (April) 1948.

6. Weinberger, L. M.; Gibbon, M. H., and Gibbon, M. H., Jr.: Temporary Arrest of the Circulation to the Central Nervous System: Physiologic Effects, Arch. Neurol. & Psychiat. **43**: 615-634 (April) 1940.

7. Bailey, H.: Cardiac Massage for Impending Death Under Anesthesia, Brit. M. J. **2**: 84-85 (July 19) 1941.

8. Nicholson, J. C.: Cardiac Massage, Brit. M. J. **1**: 385-386 (March 21) 1942.

9. Thompson, S. A.; Quimby, E. H., and Smith, B. C.: Effect of Pulmonary Resuscitative Procedures upon Circulation as Demonstrated by Use of Radioactive Sodium, Surg., Gynec. & Obst. **83**: 387-391 (Sept.) 1946.

10. Thompson, S. A., and Rockey, E. E.: The Effect of Mechanical Artificial Respiration upon Maintenance of the Circulation, Surg., Gynec. & Obst. **84**: 1059-1064 (June) 1947.

11. Pollock, G. A.: Cardiac Massage: An Experimental Study, Brit. M. J. **2**: 157-158 (Aug. 8) 1942.

12. Sollman, T. H.: Manual of Pharmacology and Its Applications to Therapeutics and Toxicology, ed. 7, Philadelphia, W. B. Saunders Company, 1948, pp. 472-473.

13. Fauteux,[1] Adams and Hand.[3]

14. Eckenhoff, J. E., and Hafkenscheil, J. H.: The Effect of Nikethamide on Coronary Blood Flow and Cardiac Oxygen Metabolism, J. Pharmacol. & Exper. Therap. **91**: 362-369 (Dec.) 1947.

15. Beck, C. S.: Resuscitation for Cardiac Standstill and Ventricular Fibrillation Occurring During Operation, Am. J. Surg. **54**: 273-279 (Oct.) 1941.

16. (*a*) Bursten, C. L., and Marangoni, B. A.: Protecting Action of Procaine Against Ventricular Fibrillation Induced by Epinephrine During Cyclopropane Anesthesia, Proc. Soc. Exper. Biol. & Med. **42**: 210-212 (Jan.) 1940. (*b*) Bittrich, N. M., and Powers, W. F.: Intravenous Procaine in Thoracic Surgery, Anesth. & Analg. **27**: 181-196 (July-Aug.) 1948. (*c*) Lampson, R. S.; Schaeffer, W. C., and Lincoln, J. R.: Acute Circulatory Arrest, J. A. M. A. **137**: 1575-1578 (Aug. 28) 1948. (*d*) Mautz, F. R.: Resuscitation of the Heart from Ventricular Fibrillation with Drugs Combined with Electric Shock, Proc. Soc. Exper. Biol. & Med. **36**: 634-636 (June) 1937.

the intravenous use of procaine hydrochloride in these conditions is not yet possible, because of conflicting reports. However, it appears that intravenous use of procaine hydrochloride offers some protection against experimental ventricular fibrillation and cardiac arrhythmias occurring with anesthesia. It also seems that ventricular fibrillation can be more readily controlled by direct electric shock therapy when combined with intravenous use of procaine hydrochloride than when used alone.

In our case, 80 mg. of procaine hydrochloride was administered intravenously before the accident occurred; this was in keeping with our practice of giving an initial dose of 75 to 100 mg. of procaine hydrochloride intravenously when lobectomy or pneumonectomy is planned. The later doses of intracardiac procaine hydrochloride were given either alone or in combination with epinephrine. In both circumstances, procaine hydrochloride was used to prevent the onset of ventricular fibrillation by the mechanical irritation of cardiac massage and by the injected epinephrine. One cannot be dogmatic in evaluating the role of procaine hydrochloride in this successful resuscitation. It can be stated only that the drug had no untoward effect (cardiac dilatation and flaccidity) and that it may have prevented protracted ventricular fibrillation. It is significant that, in spite of the intracardiac administration of epinephrine and the use of continuous cardiac massage, only very transient periods of fibrillary movements were observed.

Unquestionably, a major factor in our successful resuscitation was the fact that the patient was young. The chances for restoration of action in cardiac standstill and for control of ventricular fibrillation are best in the absence of myocardial damage. This is most apt to occur in young subjects.

The sudden return of regular sinus rhythm in our case occurred with clamping and traction of the pericardium. It appears unlikely that this was a purely coincidental or fortuitous event, and it seems reasonable to believe that some potent stimulatory reflex was initiated to restore cardiac action. The nature and pathway of this reflex merely can be assumed. Coffey and his co-workers [17] have described a pathway from the pericardium, via the phrenic nerve, to the superior sympathetic cervical ganglion, and it is possible that a powerful stimulus, traversing this pathway, served to initiate the cardiac action.

4. *The Problem of Ventricular Fibrillation.*—Ventricular fibrillation, in contrast to cardiac arrest, presents a unique problem. In the former, it first is necessary to stop the fibrillary movements before one can hope to restore regular sinus rhythm. Cardiac massage per se will not stop fibrillation; on the contrary, it may potentiate the arrhythmia. With these points in mind, Beck and his co-workers [2] have used an electrical apparatus to shock and defibrillate the heart. The clinical effectiveness of the apparatus already has been confirmed. Procaine hydrochloride has been advised as an adjuvant in electrical defibrillation, and Mautz [16d] has shown that intravenous use of procaine hydrochloride, when combined with electrical shock, restored a coordinated beat in practically all of the experimental animals with ventricular fibrillation, whereas electrical shock alone was successful in only one half of the animals. In the absence of a defibrillating apparatus, intra-auricular injection of procaine hydrochloride and cardiac massage should be used, in the hope of controlling the fibrillation.

SUMMARY

A case of cardiac arrest of forty minutes' duration, occurring during pneumonectomy, with full and complete recovery is reported. The therapeutic measures used were immediate cardiac massage, artificial respiration, intracardiac use of epinephrine and intravenous use of procaine hydrochloride. Regular sinus rhythm appeared following strong traction on the pericardium. The therapy of cardiac standstill is discussed.

17. Coffey, W. B.; Brown, P. K., and Humber, J. D.: Angina Pectoris: The Anatomy, Physiology and Surgical Treatment, New Orleans, A. J. Dickerson, 1927

Council on Physical Medicine

REPORTS OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

MOISTAIRE HEAT THERAPY UNIT MODEL 420 ACCEPTABLE

Manufacturer: The Ries Corporation, 515 South Aiken Avenue, Pittsburgh 6.

The Moistaire Heat Therapy Unit Model 420 is the same as the Saturated Air Fever Therapy Unit (Equipment Service Company, Pittsburgh) that was listed in Apparatus Accepted, Sept. 30, 1947. Certain improvements have been made, but in addition the apparatus has been renamed and the Ries Corporation has succeeded the Equipment Service Company.

This apparatus is essentially a stainless steel table bearing a cabinet of such shape and size that only the head and feet of the subject project from the chamber in which the warmed water-vapor is applied to the subject's body; the unit includes the table, the treatment hood and tank, the recirculating unit, moisture-proof curtains, a latex mattress with moisture-proof covering and a 3,800 cc. (4 quart) container for water. The table measures 76 cm. (30 inches) in height, 67 cm. (26½ inches) in width and 183 cm. (72 inches) in length. The mattress measures 61 by 173 by 6½ cm. (24 by 72 by 2½ inches). The unit as a whole weighs 180 Kg. (400 pounds); the shipping weight is 230 Kg. (505 pounds). The motor requires a 110 to 115 volt 60-cycle alternating current and draws 1,190 watts (12 amperes).

Moistaire Heat Therapy Unit Model 420.

During a treatment, air saturated at a water temperature of about 54.4 C. (130 F.) enters the treatment hood. Here the temperature falls to about 50.5 C. (123 F.) before the air returns to the conditioning device. Thus saturation is assured.

The Council was furnished with evidence that this apparatus has given satisfactory service in the hands of practicing physicians and is well adapted to its purpose. The Council on Physical Medicine voted to include the Moistaire Heat Therapy Unit Model 420 in its list of accepted devices.

ROCKE HYDROTHERAPY BATHS MODELS 31 AND 41 ACCEPTABLE

Manufacturer: Wm. Rocke Co., Inc., 623 Madison St., Evanston, Ill.

The Rocke Hydrotherapy Baths are convenient devices for immersing part or all of the body in water. Both are provided with means for agitating the water. Model 31 is intended for the patient's arms or legs only; model 41 is large enough to immerse the patient, in the sitting position, up to the neck.

Rocke Hydrotherapy Bath Model 41.

Model 31 is made of anodized aluminum in one piece and has a capacity of 75 liters (20 gallons). It stands 86 cm. (34 inches) high and weighs 52 Kg. (115 pounds). When crated for domestic shipment it measures 73 by 67 by 95 cm. (28¾ by 26½ by 37½ inches) and weighs 63 Kg. (140 pounds). The foreign shipping weight is 68 Kg. (150 pounds). This model has two switches, one for the circulator power unit (¼ horsepower motor) and the other for

the drain pump (a 1/15 horsepower motor). Motors can be supplied to run on either 110-120 or on 220-230 volts of alternating current, and the same for direct current; the power consumption is 400 watts.

Model 41 is made of stainless steel, seamlessly welded with a beaded rim, and holds 150 to 190 liters (40 to 50 gallons). The actual dimensions of the model 41 are 90 high by 56 wide by 107 cm. long (35 by 22 by 42 inches). When crated for domestic shipment it measures 116 by 75 by 100 cm. (45½ by 29½ by 39½ inches) and weighs 120 Kg. (265 pounds); the foreign shipping weight is 130 Kg. (290 pounds). This model has two ¼ horsepower motors for the circulator unit and a 1/15 horsepower motor for the drain pump. The types of current needed are the same as for model 31, but the power consumption is 800 watts.

The Council obtained evidence that these two devices are well constructed, safe and efficient. Model 31 is very much the same as the apparatus the acceptance of which was announced in THE JOURNAL of Nov. 13, 1943, page 701.

The Council on Physical Medicine voted to include the Rocke Hydrotherapy Baths, Models 31 and 41, in its list of accepted devices.

SILVER MICRONIC HEARING AID, MODELS 202 M AND 202 C ACCEPTABLE

Manufacturer: Micronic Company, 727 Atlantic Avenue, Boston 11.

These two instruments are substantially similar except that they are provided with magnetic and crystal types of receivers respectively. A single case contains amplifier, microphone and batteries.

Silver Micronic Hearing Aid, Models 202C & 202 M.

The outside dimensions of the case, including control switches but excluding clothing clips, are 107 by 55 by 20 mm. (4¼ by 2⅛ by ⅘ inch). Its weight, including batteries and crystal receiver, is 156 Gm. (5½ ounces).

Battery Data:

	Milliamperes
A Battery	50
B Battery magnetic receiver (quiet)	0.5
B Battery magnetic receiver in presence of sound	0.6
B Battery crystal receiver (quiet)	0.4
B Battery crystal receiver in presence of sound	0.5

The results of the performance tests of the Micronic are as follows:

Micronic Model 202 M Hearing Aid

Subject	Tone Setting	Volume	Acoustic Gain	Articulation Scores: Micronic 202 M	Articulation Scores: Reference
A	1	⅛	53 db.	81%	80%
B	3	⅞	47 db.	83%	77%

Micronic Model 202 C Hearing Aid

Subject	Tone Setting	Volume	Acoustic Gain	Articulation Scores: Micronic 202 C	Articulation Scores: Reference
A	1	⅛	53 db.	81%	80%
B	3	⅞	43 db.	80%	77%

Both subjects are habitual users of hearing aids. A's deafness is of the mixed type with 47 decibel loss for speech. Subject B has conductive deafness with 49 decibel loss for speech.

The Council on Physical Medicine voted to include the Silver Micronic Hearing Aid, Models 202 M and 202 C, in its list of accepted devices.

TONEMASTER MODEL ROYAL HEARING AID ACCEPTABLE

Manufacturer: Tonemasters, Inc., 1627 Pacific Avenue, Dallas 1, Texas.

The Tonemaster Model Royal Hearing Aid is a self-contained type hearing aid.

The dimensions of the instrument, including the clothing clips, are 119 by 65 by 23 mm. (4¾ by 2½ by 15/16 inch). The weight, including batteries, cord and magnetic receiver, is 238 Gm. (8.4 ounces).

Tonemaster Model Royal Hearing Aid.

Battery Data:

	Milliamperes
A Battery	41
B Battery (quiet)	0.58
B Battery in presence of sound	0.32

The results of the performance tests of the Tonemaster are as follows:

Subject	Tone Setting	Volume	Acoustic Gain	Articulation Scores: Tonemaster	Articulation Scores: Reference
A	Vertical	Full	51 db.	86%	80%
B	Middle	Full	52 db.	96%	77%

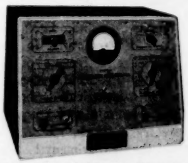
Both subjects are habitual users of hearing aids. A's deafness is of the mixed type with 47 decibel loss for speech. Subject B has conductive deafness with 49 decibel loss for speech.

The Council on Physical Medicine voted to include the Tonemaster Model Royal Hearing Aid in its list of accepted devices.

GOLSETH-FIZZELL CONSTANT CURRENT IMPULSE STIMULATOR, MODEL DS, ACCEPTABLE

Manufacturer: Chicago Medical Electronics Laboratory, Inc., 214 Ward Building, Battle Creek, Mich.

The Golseth-Fizzell Constant Current Impulse Stimulator, Model DS, with Electronic Timing Control, is an instrument designed to deliver direct-current stimuli in the diagnosis and treatment of nervous and muscular disorders. The apparatus is housed in a rectangular case that is provided with a handle and weighs about 13 Kg. (28 pounds). It measures 42 by 30 by 28 cm. (16½ by 12 by 11 inches) and operates on 115 volt 60 cycle alternating current. All the necessary accessories are carried within the cabinet cover.



Golseth-Fizzell Constant Current Impulse Stimulator, Model DS.

The duration of the impulse can be set at various predetermined values ranging from 1 up to 1,500 milliseconds. The interval between impulses can be set at 1, 5, 12, 1,000 or 4,000 milliseconds. The current intensity is registered from 0 to 25 milliamperes on a well damped milliammeter, and a potentiometer permits easy adjustment of the intensity. The dispersive electrodes furnished are round, flat metal disks 4.5 cm. and 3.25 cm. in diameter. The two active electrodes furnished are 1 and 2 cm. in diameter. The following diagnostic or prognostic tests can be made with the instrument: (1) galvanic tetanus ratio, (2) rheobase measurement, (3) chronaxis measurement, (4) strength-duration curve and (5) repetitive stimuli test.

Evidence was obtained from an acceptable clinic that the device was satisfactory for the aforementioned purposes. The Council on Physical Medicine voted to include the Golseth-Fizzell Constant Current Impulse Stimulator, Model DS, in its list of accepted devices.

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Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

LIPO-ADRENAL CORTEX.—An oil-soluble extract of hog adrenal glands concentrated by fractionation and containing crystalline biologically active constituents of what are considered to be 17-hydroxycorticosterone, 11 dehydro-17-hydroxycorticosterone and corticosterone and a noncrystallizable amount of 11-dehydrocorticosterone. The extract is practically free of epinephrine. It is assayed biologically according to the survival growth method of Cartland and Kuizenga (*Am. J. Physiol.* **117**:678, 1936) and the muscle-work test of Ingle (*Endocrinology* **34**:191, 1944).

Actions and Uses.—Lipo-Adrenal Cortex is employed for the same indications as for Adrenal Cortex Extract, but is supplied in oil solution only for intramuscular injection when more prolonged absorption is desired.

Dosage.—The dosage varies according to the degree of cortical insufficiency and should be governed by the clinical response. In crisis or the presence of infection or other complications as much as 2 to 3 cc. daily may be required, while 1 to 2 cc. daily may be sufficient for maintenance. Sodium salts are of definite value to supplement adrenal cortex therapy. It should be borne in mind that lipo-adrenal cortex has approximately ten times the cortical activity of adrenal cortex extract and because it is administered in oil solution it should never be injected intravenously.

Preparation.—

Lipo-adrenal cortex is prepared by a method described by Kuizenga, Wick, Ingle, Nelson and Cartland (*J. Biol. Chem.* **147**: 561, 1943). Frozen hog adrenal glands are extracted with chilled acetone and the gland residue removed by filtration. Sufficient water is then added to the acetone extract to make a 60 per cent acetone solution. A liquid fat fraction which separates is extracted with 20 per cent acetone, and the combined 60 per cent and 20 per cent acetone extracts are concentrated *in vacuo* to remove the acetone. The aqueous solution is then extracted with petroleum ether, followed by extraction with ethylene dichloride to obtain the active fraction. The ethylene dichloride solution is concentrated *in vacuo* below 40 C. and the residue dissolved in 95 per cent alcohol. Residual amounts of fat and cholesterol are removed by extraction of aqueous alcohol solutions with petroleum ether, which is done first from 70 per cent ethyl alcohol, then from 50 per cent methyl alcohol and, finally, from 30 per cent methyl alcohol. The 30 per cent methanol solution, free of petroleum ether-soluble material, is concentrated to remove alcohol and the cloudy aqueous solution is extracted with ethyl acetate. Acidic and basic substances are removed by washing the ethyl acetate solution with sodium carbonate, followed by 0.5 N HCl and, finally, distilled water. The ethyl acetate solution is dried with anhydrous $MgSO_4$. The dry concentrate from ethyl acetate is dissolved in acetone and the required amount of cotton seed oil and 0.5 per cent chlorobutanol is added. The acetone is completely removed *in vacuo* with a stream of N_2 gas and the resulting oil solution is sterilized by Seitz filtration.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Solution Lipo-Adrenal Cortex: 1 cc. and 5 cc. vials. Each cubic centimeter contains not more than 7.5 mg. of gland extractive solids having a potency of 40 rat units (Survival-Growth) and the equivalent in biological activity to 2 mg. of 11-dehydro-17-hydroxycorticosterone (Muscle-Work Test) in cottonseed oil. Preserved with chlorobutanol 0.5 per cent.

PERTUSSIS VACCINE COMBINED WITH TETANUS TOXOID.—A combination of pertussis-tetanus antigens prepared by suspending 40,000 million phase I, *H. pertussis* organisms in each cubic centimeter of fluid tetanus toxoid of the potency required by the National Institute of Health.

Actions and Uses.—Pertussis vaccine combined with tetanus toxoid is employed for the simultaneous active immunization of persons susceptible to both these infections. The combination is suitable for initial basic immunization as well as for follow-up stimulation because the dosage intervals for satisfactory results are similar for both antigens. It is intended primarily for use when it is considered expedient or preferable to administer diphtheria immunization separately.

Dosage.—For basic immunization of infants, three subcutaneous injections consisting of 0.5 cc., 1.0 cc., and 1.0 cc. are administered consecutively at intervals of one month. For use as a "booster" to stimulate greater and more prolonged immunity, a single follow-up dose of 1.0 cc. is recommended one year after basic immunization has been completed.

CUTTER LABORATORIES, BERKELEY, CALIF.

Tetanus Toxoid and Bacterial Vaccine Made from H. Pertussis Combined: 2.5 cc. (one complete immunization) and 10 cc. (four complete immunizations) vials. 40,000 million phase I, *H. pertussis* per cc. Preserved with sodium ethylmercurithiosalicylate 1 : 10,000.

PERTUSSIS IMMUNE SERUM (HUMAN) (See New and Nonofficial Remedies 1948, p. 487).
The following dosage form has been accepted:

CUTTER LABORATORIES, BERKELEY, CALIF.

Antipertussis Serum (Human): A highly purified and concentrated globulin prepared from human donors immunized with *H. pertussis* vaccine. Preserved with sodium ethylmercurithiosalicylate 1 : 10,000. Each vial contains 2.5 cc., which represents the initial dose. Dose may be repeated as often as indicated by the condition of the patient.

THIAMINE HYDROCHLORIDE-U. S. P. (See New and Nonofficial Remedies 1948, p. 548).
The following dosage form has been accepted:

COLE CHEMICAL COMPANY, ST. LOUIS 8

Solution Thiamine Hydrochloride: 15 mg. and 30 mg. per 30 cc. bottles and 475 cc. and 3.78 liter bottles.

Tablets Thiamine Hydrochloride: 1 mg., 3 mg. and 5 mg.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).
The following dosage form has been accepted:

AYERST, MCKENNA & HARRISON, LTD., NEW YORK

Aqueous Suspension Estrogenic Substances: 10,000 I. U. and 20,000 I. U. per cc., 10 cc. vials; 50,000 I. U. per cc., 5 cc. vials.

DIENESTROL (See New and Nonofficial Remedies 1948, p. 377).
The following dosage form has been accepted:

CARROLL DUNHAM SMITH PHARMACAL CO., NEW BRUNSWICK, N. J.

Tablets Dienestrol: 0.1 mg. and 0.5 mg.

STREPTOMYCIN (See New and Nonofficial Remedies 1948, p. 159).
The following additional dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI 15

Streptomycin Calcium Chloride Complex: 6.5 Gm. vials equivalent in activity to 5 Gm. of streptomycin base.

SULFAMERAZINE-U. S. P. (See New and Nonofficial Remedies 1948, p. 134).
The following dosage form has been accepted:

AMERICAN PHARMACEUTICAL COMPANY, NEW YORK 18

Tablets Sulfamerazine: 0.5 Gm.

SODIUM ASCORBATE INJECTION-U.S.P. (See New and Nonofficial Remedies 1948, p. 561).
The following dosage form has been accepted:

WILLIAM H. RORER, INC., PHILADELPHIA 6

Solution Sodium Ascorbate: 100 mg. per cc., 5 cc. and 10 cc. ampuls. Each cc. contains sodium ascorbate equivalent to 100 mg. of ascorbic acid, stabilized with thiourea .01 per cent in sterile aqueous solution.

TYROTHRICIN (See New and Nonofficial Remedies 1948, p. 66).
The following dosage form has been accepted:

S. B. PENICK & COMPANY, NEW YORK 7

Tyrothricin: Bulk. 100 Gm., 500 Gm. and 1,000 Gm. glass jars.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies 1948, p. 286).
The following dosage form has been accepted:

JULIUS SCHMID, INC., NEW YORK 19

Ramses Vaginal Jelly: 143 Gm. collapsible tubes.

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SATURDAY, MARCH 26, 1949

DEXTRAN AS A PLASMA SUBSTITUTE

Dextran, though scarcely known in this country, has been extensively studied in Sweden and has already achieved a fairly wide use there in intravenous solution as a means of treating various types of surgical shock. In this country, especially since the war and with the development of blood banks, whole blood and plasma have been more and more widely used for such a purpose. Nevertheless, the field for a satisfactory plasma substitute is far from closed. Indeed, considerable promise was held forth recently for newer preparations of gelatin solutions in the therapy of surgical shock of certain types. Earlier attempts to use such substances as acacia and pectin, while at first apparently successful, were doomed a priori because they were really foreign substances which the body had no way of metabolizing; they accumulated in the tissues and, if the amount injected was large, serious anatomic changes followed. Even gelatin, though a true protein, may not be utilized as such by the body. Although final evidence is lacking, infusions of gelatin probably reach the tissues and behave just as much as a foreign body as surgical gut, which, also a protein, is not really metabolized, but rather attacked and removed by phagocytes. Moreover, gelatin is classed as a fibrous protein, being long and stringlike, thus lacking the globular shape of albumin and most other plasma proteins, a difference of perhaps some importance.

Dextran is unlike other plasma substitutes in that it is composed of molecules of glucose, a substance which is, of course, normally metabolized by the body and indeed is an excellent source of energy. Dextran was first discovered by the Germans as an annoying complication sometimes encountered in sugar refineries. In the process of extraction of sugar from beets, a mucoid material would occasionally form which interfered with the speed of filtration. This material was observed only in sugar solutions which happened to be infected with a bacterium later identified as Leuconostoc mesenteroides. This organism had the remarkable property of joining glucose molecules in long chains including side chains, thereby forming polysaccharides with molecular weights in the millions. Most of the recent work has been done in Sweden by biochemists working in close collaboration with the Swedish sugar beet industry.[1]

Dextran was first prepared and then hydrolyzed so that it attained a molecular weight of about 100,000, which is close to that of plasma albumin. Various solutions were then carefully prepared and injected intravenously as a plasma substitute. The basic work in animals was carried on by Grönwall and Ingelman,[2] who found that the solution was well tolerated and seemed rather effective in treating experimental shock. It was then injected in human beings at the Central Hospital in Örebro by Bohmansson, Rosenkvist, Thorsén and Wilander.[3] The earlier solutions were tested in hopeless cases of cancer. Difficulty was experienced in producing a solution of constant composition, but a more or less uniform preparation was finally obtained which has been widely used in thousands of cases and shown to be almost entirely free of untoward reactions and with definite physiologic and therapeutic properties.

As used in Sweden at the present time, a 6 per cent dextran solution in 0.9 per cent sodium chloride solution is injected intravenously in amounts of 400 cc. up to as much as 3,000 cc. in the treatment of shock due largely to loss of plasma such as in burns, peritonitis and postoperative and post-traumatic states, and also as a prophylactic injection when shock is feared. Its effect in elevating low blood pressure is prompt and lasting in the cases described. One of its uniform actions is a rise in the sedimentation rate, which reaches its maximum at the end of the infusion and then gradually returns to normal in the course of a few days. Chemical methods of measuring dextran have been devised, and these show that about 25 per cent of the material infused (presumably the smaller-sized particles) is excreted by the kidneys during the few hours immediately following, but that the level in the blood itself falls rather slowly over the course of about four days. Study of the tissues following infusion in animals shows no evidence that dextran has accumulated therein after leaving the blood stream. This suggests but does not prove that the polysaccharide is broken down to glucose and then metabolized. As might be expected hematocrit measurements show hemodilution following the infusion of dextran, although there seems to be a curious reversal of this effect for a few hours; i. e., the relative red cell volume falls rapidly at first, then returns to normal in about an hour, falling again during the sixth to eighth hour and remaining low for at least twenty-four hours thereafter. This is explained by the authors as due to the emptying of blood depots of red cells. Evidence of renal or hepatic damage has

1. Ingelman, B.: Acta Chem. Scandinav. **1**: 731, 1947.
2. Grönwall, A., and Ingelman, B.: Acta. Physiol. Scandinav. **7**: 97, 1944 and **9**: 1, 1945.
3. Bohmansson, G.; Rosenkvist, H.; Thorsén, G., and Wilander, O.: Acta. Chir. Scandinav. **94**: 149, 1946.

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not been seen, although the authors frankly admit that this possibility cannot be eliminated until several years have passed.

An important though still theoretic advantage of dextran as a clinically safe and effective plasma substitute lies in its chemical nature. Being composed exclusively of glucose molecules, it is presumably metabolized by the body as a source of energy. This requires hydrolysis of the dextran by appropriate blood or tissue enzymes. Although suggestive evidence has been obtained as described in the foregoing, more data are necessary. Final proof will doubtless be forthcoming and, if it is true that dextran is actually hydrolyzed to glucose by the body, this theoretic advantage will become a real one. Only in this way can its superiority over other plasma substitutes which act as foreign substances be definitely established. Moreover, glucose is always needed, especially by patients receiving fluids intravenously; even if dextran furnishes glucose slowly, it could thus claim an additional therapeutic effect entirely apart from its colloidal property. The disadvantage of dextran because it is a long, string-like molecule still remains, but this may be of much less importance. The development of this new therapeutic agent represents an example of what can be achieved through close association between medicine and industry.

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THE CANADIAN NATIONAL HEALTH PROGRAM

At the November meeting of the Royal College of Physicians and Surgeons of Canada, the Honorable Paul Martin, Minister of National Health, reported progress of the National Health Program.[1] The minister expressed many points of view of the Canadian Government toward the medical profession which contrast sharply with views and attitude expressed by officials in the United States. Chief among these expressions of attitude was the statement that action would not be taken by the present Canadian Government under any program for the improvement of health services in Canada which would "stifle or destroy the liberty of the individual doctor." In order to provide better health for the citizens of its country, the Canadian Government looks first to the medical profession for leadership. Regimentation of doctors and professional personnel generally was considered to be ruinous to any expectation for health progress. Minister Martin stated, "In any sensible health plan the doctor holds a responsible position. Will we not want to see that doctors should continue to be free to serve their patients—not that they should become mere servants of the state." Discussing the responsibilities of the Provinces and the Federal Government in the program, Mr. Martin said that while health is of obvious national concern, it still must be considered primarily a provincial responsibility. Except for such services as inspection of food and drugs, quarantine, and health care for marine and Indian groups, planning and administration must be centered in the Province. It was considered folly to attempt to administer a centralized program from the dominion capitol. The clear responsibility of the Federal Government is emphasized to be that of cooperation with professional authorities in the coordination of efforts. The centralization of administration in the hope of creating efficiency was stated to be an illusion, "such centralization would badly serve the Canadian citizens."

Major objectives of the Canadian National Health Program, which has now been in operation some five months are stated to be: 1. Comprehensive and searching surveys of the Canadian health scene to be made by each province and a formulation by each province of its plans for the future. For this purpose grants of federal funds are made to the provinces. 2. The strengthening and extension of provincial health services through widening the range of preventive medicine, encouragement of public health research, the training of professional health workers and increased services in the fields of venereal disease, tuberculosis, cancer and mental illness. 3. The stimulation of provision for increased hospital accommodations to be encouraged by annual grants to the provinces up to a total of 65 million dollars over a period of five years. Grants would be based on a government contribution of from 1,000 to 1,500 for each hospital bed on the condition that the provinces match these grants.

In each case, stress is laid on the autonomy of the provinces as opposed to federal centralization. In spite of the fact that the program has been under way for such a short time, the provinces have actively cooperated by enthusiastically undertaking comprehensive surveys of health conditions in each of the provinces. Reviewing health progress in Canada during the last twenty years, the minister indicated that the general death rate had dropped 17 per cent; infant mortality had decreased by 44 per cent and maternal mortality had decreased 42 per cent. These are indicative of the effectiveness of present methods. The Canadian program stresses the importance of preventive medicine and the need for including the general practitioner and family doctor in plans for improved preventive work. In his closing remarks to the Royal College, the minister stated, "It should be your concern as leaders in Canadian medicine above all else to guard against any action, whether it be by private agency or by government, that would lower the standard of medical practice. All our health programs would fail if the intangibles of medical progress—the quality of medical training, the doctor's instinct for

1. Martin, P.: Canada's National Health Program, read at the annual meeting of the Royal College of Physicians and Surgeons of Canada, Ottawa, Nov. 27, 1948.

selfless service—should in any degree be allowed to deteriorate."

The Canadian program when under full swing will cost the Government approximately 30 million dollars yearly. This amount will be distributed to the provinces in accordance with the needs and plans of each. The outstanding principle of the over-all federal program, and of the individual projects to be sponsored and carried out by each province, is that the greatest emphasis be placed on research, training of personnel and mass attacks on environmental factors of disease.

The reluctance of the Canadian Government to do anything which will interfere with the treatment of individual patients by individual physicians marks the basic philosophy of the Canadian plan.

PROVISIONAL DEFINITION OF POLIOMYELITIS VIRUS

Confusion regarding restrictions that should be applied to the term poliomyelitis virus, as opposed to other allied terms such as encephalomyelitis or encephalitis virus, has recently been considered by the Committee on Nomenclature of the National Foundation for Infantile Paralysis. Recommendations submitted were that the term poliomyelitis virus be used only to designate strains of the agent originally described as the cause of poliomyelitis in man, regardless of the source from which it may be recovered in nature. The identifying characteristics of this virus are the production of typical experimental disease in the monkey, the characteristics and distribution of histologic lesions in the spinal cord and brain of primates, the host range of the virus and its immunologic properties.

The clinical signs of disease in monkeys include fever, tremor and spasticity of muscles, usually followed by paralysis within a day or two. Severe generalized tremors are considered almost without exception to be pathognomonic of poliomyelitis. Pathologic lesions in the monkey essentially duplicate those in human beings in type and distribution. Spinal cord lesions are concentrated in the gray matter and primarily in the anterior horn cells. These are accompanied by focal and diffuse infiltration of leukocytes in areas of nerve cell damage. The cerebral cortex is noted to be generally spared and the deep cerebellar nuclei are generally involved.

Virus which produces the characteristic experimental disease in monkeys but does not infect other mammals may be considered poliomyelitis virus. In addition, certain strains isolated from typical cases have the capacity of producing paralytic poliomyelitis in mice, hamsters and cotton rats, but not in guinea pigs or rabbits. These strains appear to be immunologically related to the Lansing-1938 strain.

The committee stated that certain strains of encephalomyelitis virus of mice or "mouse poliomyelitis" (e. g., TO, FA, GD VII) and other viruses that produce lesions in the anterior horns of spinal cords in experimental animals but that do not otherwise satisfy criteria set down for poliomyelitis virus, should not be called "poliomyelitis virus," "mouse poliomyelitis virus" or "poliomyelitis-like virus."

MENTAL HEALTH AND INTERNATIONAL TENSIONS

Members of the UNESCO Conference on World Tensions [1] and the International Congress on Mental Health [2] have recently reported deliberations of major significance to world peace. The conclusions are based chiefly on the psychiatric premise that human emotions ("human nature") can now be scientifically studied, understood and even changed both for the individual and the group. Wars are unnecessary and are not considered inevitable consequences of human nature. Some needs are vital to all men: these include freedom from disease, insecurity and fear. Men everywhere desire at the same time fellowship, respect of their fellowmen and a chance for personal growth and development.

Inequalities in the use of modern productive power and resources were considered partially responsible for economic inequalities, insecurities and frustrations which lead to group and national conflict. One group may be wrongly led to see another group as a menace through acceptance of false images and oversimplified solutions. Myths, traditions and symbols of national pride handed down from generation to generation, plus current social and nationalistic symbols, are believed to hinder free movement of thought across artificial political boundaries of an interdependent world. The report suggests that neither continued colonial exploitation nor oppression of minorities is compatible with world peace.

As general standards of mental health are not universally applicable, a universal recommendation for the provision of types and numbers of psychiatric hospitals and clinics per unit of population cannot be made now. The primary concern of workers in the field of mental health is the development of methods for the release of human potentialities individually and collectively for the common good.

This newly clarified concept of the modifiability of human nature through insight into otherwise unconscious obstructions suggests ways of removing obstacles to personal and social development. The primary factors leading to better mental health are the acquirement by the individual of self knowledge and group social insight. Effort in behalf of one's own group can become compatible with effort in behalf of humanity generally.

1. UNESCO Conference on World Tensions—An International Multidisciplined Group, Psychiatry **11**: 231-233 (Aug.) 1948.

2. International Congress on Mental Health London, August 1948: Statement by International Preparatory Commission, Psychiatry **11**: 235-261 (Aug.) 1948.

ANTIBACTERIAL THERAPY OF TUBERCULOSIS

Modern antibacterial therapy of tuberculosis using streptomycin or sulfone compounds has never been hailed as a definitive self-sufficient method of treatment. Nevertheless, some authors of articles directed to the public have at times been less critical in their appraisal. A troublesome disregard of the limitations and hazards of treating tuberculosis with such drugs as streptomycin has become apparent. Physicians are pressed by anxious patients or their friends to use streptomycin instead of other well established methods.

A recent report of the Clinical Subcommittee of the Committee on Medical Research and Therapy of the American Trudeau Society (Medical Section of the National Tuberculosis Association) offers specific recommendations:

> Streptomycin appears to be most effective in the treatment of recent, acute, fairly extensive, and progressing pulmonary tuberculous lesions. Its use is particularly recommended in the treatment of tuberculous pneumonia. Symptomatic relief and roentgenologic improvement are common in many types of pulmonary tuberculosis soon after initiating therapy with streptomycin. In general, the degree of benefit is in direct proportion to the extent of the acute or exudative component of the total disease being treated. As relapse is common, streptomycin is best used as an adjunct to other standard forms of treatment. The following types of disease are regarded as especially suitable for streptomycin therapy: (*a*) acute bronchopneumonic tuberculosis with severe symptoms; (*b*) acute bronchogenic spread, particularly when of such a nature that much needed collapse therapy is prevented; and (*c*) chronic disseminated finely nodular tuberculosis without large confluent areas of destructive disease.

Streptomycin has, after less than four years of clinical trial, demonstrated its capability of producing unprecedented therapeutic benefits to patients with some types of tuberculosis which were most refractory to all previous medical and surgical treatment.[1] However, clinicians experienced in the use of the drug have emphasized repeatedly that its greatest usefulness is in conjunction with rest in bed, collapse therapy and surgical treatment. The earliest clinical reports which appeared about three years ago and others which followed warned against overoptimism and emphasized the peculiar limitations of antibacterial therapy in the treatment of a disease such as chronic tuberculosis with a lifelong tendency to relapse.

The Trudeau Society Committee said further:

> As streptomycin can only be used for periods of two to four months in the therapy of this chronic disease and because of the emergence of resistant organisms, it is imperative that streptomycin be used for a period during the course of the disease when the greatest benefit can be expected. . . . The Committee looks with disfavor on the practice of utilizing streptomycin prior to institutional care or as an alternative to collapse therapy in the hope that such treatment might be avoided.

This indicates clearly the necessity of integrating other therapeutic procedures with the timely administration of streptomycin to carefully selected patients. Physicians who do not have access to other medical and surgical facilities for treating tuberculosis should hesitate to administer streptomycin, especially for the treatment of pulmonary tuberculosis.

The hazards of streptomycin toxicity have been reduced steadily during the past two years; first, as a result of regulating dosage, and, second, by chemical modification of streptomycin to dihydrostreptomycin. Although dihydrostreptomycin is but slightly different in chemical structure from the parent compound, it appears to be distinctly less toxic, while retaining the therapeutic potentialities of streptomycin. Dihydrostreptomycin is not devoid, however, of toxic potentialities and its use should be subjected to restrictions similar to those advocated for streptomycin.

The Mycobacterium tuberculosis is yielding to the ever increasing pressure of scientific achievement. Improved methods of detecting tuberculosis, such as mass roentgenography, and improved methods of offensive action, such as present day chemotherapy and surgical treatment, have been developed greatly in recent years. During the past four years greater progress has been made against this enemy on these fronts than during the preceding forty years.

1. Report to the Council on Pharmacy and Chemistry, J. A. M. A. **138**: 584-593 (Oct. 23) 1948.

Current Comment

STANDARDS FOR CHILDREN'S CONVALESCENT HOMES

The Sub-Committee of the Committee on Public Health of the New York Academy of Medicine,[1] following a study of conditions in convalescent homes, has reported a set of standards for grading and licensing. At present the requirements of licensing vary from state to state; none is up to standard in many of the phases considered in the report and official inspections of convalescent homes are usually limited to the physical plant. The committee believes the main purpose of children's convalescent homes to be provision of good institutional care in an environment conducive to the betterment of physical and mental health. The report considers both generalized and specialized homes in detail and also types of patients suitable for treatment in convalescent homes. Age limits considered acceptable range from 2 to 12 years. Administrators should give preference to patients recovering from acute illness and accept patients for long term care only when a favorable prognosis is indicated. The specific functions of personnel including physicians, nurses, social workers and other attendants, are presented. To reduce cost to the patients, volunteer aid is encouraged. Many such institutions do not make use of the excellent opportunity which they are given to inculcate habits of health in the children under their supervision. In view of the large number of such homes which spring up from time to time throughout the country without adequate personnel and medical supervision, the recommendations made by the committee deserve wide attention.

1. Standard for Convalescent Homes for Children, Prepared by a Sub-Committee of the Committee on Public Health Relations of the New York Academy of Medicine, J. Pediat. **33**: 251-259 (Aug.) 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

March 21, 1949.

April Expected to be a Lively Congressional Month

With indications pointing to transmittal to Congress late in March of President Truman's national health message, Capitol Hill is preparing for an April launching of public hearings on compulsory health insurance and certain other less controversial measures pertaining to medical care and hospitalization.

Although the Senate will be the scene of most activity, the first hearings on a bill involving the medical sciences have been scheduled by the House. March 30 and 31 and April 1 have been set aside by the health subcommittee of the House Interstate and Foreign Commerce Committee to hear witnesses for and against the National Science Foundation bill. One of its provisions is for establishment of a special division for coordination of medical research conducted in the United States. The bill has been favorably reported by the Senate Labor and Public Welfare Committee.

The same committee has appointed a special subcommittee to handle pending legislation on federal subsidization of local public health units and expansion of the Hill-Burton hospital construction act. Senator Lister Hill (Democrat, Alabama) is chairman and other members are Senators Paul H. Douglas and Garrett L. Withers, Democrats, and Robert A. Taft and H. Alexander Smith, Republicans. It is considered likely that public hearings on these two bills will be held independently of hearings on general health legislation. The latter will be in charge of the standing subcommittee on health, headed by Senator James E. Murray (Democrat, Montana). On its calendar, besides the Murray-Wagner-Dingell bill will be the prospective omnibus health bills to be sponsored by Senators Taft and Smith and by Senator Hill. It is regarded almost as a certainty that the Murray subcommittee will open hearings some time in April on the Hill, Taft-Smith and Murray-Wagner-Dingell bills, the last named of which is still in process of being revised.

Arguments Heard for Increased Health Appropriations

Representatives of the American Cancer Society and the Medical College of the State of South Carolina were among those scheduled to be heard March 24-25 by a Senate appropriations subcommittee, in support of increased funds next year for the U. S. Public Health Service. Senator Taft announced he would go before the committee to urge approval of $2,000,000 for construction of a National Dental Research Institute building at Bethesda, Md. Senators Claude Pepper (Democrat, Florida) and John C. Stennis (Democrat, Mississippi) also planned to appear in support of increased funds for assistance to the states. Expansion of the federal mental health program was to be argued by Dr. Olin B. Chamberlain, of the Medical College of the State of South Carolina.

Christian Scientists Request Medical Care Concession

The House Ways and Means Committee, which is conducting hearings on social security extension that will continue for the remainder of March, has been asked to amend the pending bill H. R. 2892 so as to make Christian Science healing certifiable for medical care benefits which the bill proposes to extend to all needy persons. James Watt, manager of the Washington office of the Christian Science Committee on Publication, who laid the argument before the Ways and Means Committee, pointed out that two states—California and Illinois—recognize the principle.

"Should Christian Scientists, who themselves have contributed to the cause of old age assistance via social security and special taxes, be supplied with medical treatment but denied Christian Science treatment?" Mr. Watt asked. Christian Science treatment is a branch of the healing art. Christian Scientists have proved that reliance on material methods of healing is incompatible with reliance on divine aid through prayer and that it is not only incorrect but truly impossible under divine law to rely on both. This means that if they accept medical treatment, they are violating the very fundamentals of their religion. Although their method of treating the sick runs contrary to the prevailing systems of today, it is an integral part of their religion and they feel, in accordance with religious freedom, it is a constitutional right.

The proposed amendment is that "medical assistance," for purposes of the proposed law, be defined as meaning "medical or other legal remedial services for needy individuals."

Hearings on public assistance features of the proposed amendments, which began on February 28, were scheduled to be concluded March 22, following which the committee will take up extension of the law's provisions to the self-employed (including physicians, lawyers and other professional persons), farm and domestic labor and employees of hospitals and other nonprofit institutions.

Military Hospital Changes

Secretary of Defense James Forrestal, in late February, ordered the early closing of three Army and Navy general hospitals, reduction in status of three others and conversion of forty-eight station type hospitals to outpatient treatment centers. The changes, designed primarily to alleviate a serious shortage of medical and dental officers, had been recommended by the Hawley Board and subsequently indorsed by the Medical Advisory (Cooper) Committee. Also ordered effectuated by Secretary Forrestal on recommendation of the two advisory groups was joint staffing of medical facilities used jointly or in common by the armed services.

"Further, that in all geographical areas," said the Forrestal statement, "joint utilization be made of civilian consultants now employed by the medical services, and that professional services of outstanding specialists in the respective regular medical corps of the armed forces be more freely used in common."

General hospitals ordered decommissioned as soon as practicable are McCornack (Pasadena, Calif.) and the 22nd (Guam), both Army, and Pearl Harbor (Hawaii), Navy. The three reduced to station hospital status, all Army, are the 183rd at Anchorage, Alaska; Fort Totten, New York, and Tilton, at Camp Dix, N. J. The forty-eighth Army, Navy and Air Force station type hospitals which will be lowered to dispensary status are situated in eighteen states and the District of Columbia.

Record Figures on Streptomycin Production Revealed

On Dec. 31, 1948, the nation's stockpile of streptomycin was 6,100,000 Gm., the highest figure ever recorded, according to the Department of Commerce. Production during 1948 totaled 37,000,000 Gm., of which only 30 per cent was consumed by the domestic civilian market. Predicated on a reduction in price, wider application by the medical profession and availability of a less toxic product, the Department of Commerce anticipates a record demand and production of streptomycin in 1949. For penicillin, the Department's monthly (February) report on chemicals and drugs shows a production figure of 76,620 billion Oxford units in the first ten months of 1948. The top month was October, with 8,621 billion Oxford units.

Composite Committee Launches Antibrucellosis Campaign

At a special meeting in Washington on March 15 of representatives of public health, medical, livestock producer and certain other types of organizations, a decision was reached to form a permanent committee to advise Congress on control and eventual eradication of brucellosis. The American Medical Association, American Public Health Association, American Veterinary Medical Association and U. S. Public Health Service are among the score of organizations that will be invited to appoint representatives on the committee. Its temporary chairman is William Knox, of Fort Atkinson, Wis.

NATIONAL GRANGE ACTION ON HEALTH

REPORT OF ITS COMMITTEE ADOPTED AT ANNUAL SESSION

The members of the Interim Committee on Health have reviewed the National Grange Health Program of the past several years and believe it contains the basic recommendations for improving rural health. Looking ahead to next year on the basis of present developments and findings we recommend:

(1) Continuation of the Interim Committee on Health; (2) a meeting of the members of the Interim Committee early in the year, possibly in conjunction with the American Medical Association Rural Health Conference, to map out activities for the year; (3) expansion of efforts to establish cooperative hospitals and clinics and to broaden prepayment plans to include surgical care; (4) increased attention to the hosptial construction program in the states so that rural communities needing hospitals will be able to receive federal aid and know how to get it before the program ends; (5) more research, education, and clinics to improve the greatly neglected mental health and dental condition of people, including cooperation of the Granges with the work of mental health associations; (6) efforts at all levels of government to stop pollution of streams and harbors.

Resolutions 18 by Carstensen; 47 by Holmes; 53 by Doss, and 85 by Fichter are covered by the following resolutions as approved by the committee.

Resolved:

1. That we reaffirm the resolutions on health adopted by the National Grange during its Annual Session in 1947.
2. We have studied the recommendations of the National Health Assembly held in Washington, D. C., May 1-4, 1948 and endorse the following:
   - (*a*) The program under the Hospital Survey and Construction Act should be continued and extended under a policy of flexibility permitting adaptation as may be required to meet changing needs. The present authorization of $75,000,000 per year should be increased in view of the urgent needs for the establishment of additional hospital beds and clinics and health centers in many areas of the country.
   - (*b*) The program under Public Law 725 and the hospital program of the Veterans Administration should be closely integrated in the interest of good planning.
   - (*c*) Hospitals within service areas should be functionally or organically associated with one another so that the patient may benefit from the resources of all.
   - (*d*) Governmental agencies having assumed responsibility for hospital care for patients and nongovernmental agencies purchasing hospital care should pay the established rate for such care.
   - (*e*) Hospitals, health departments and all other health agencies should seek every method for coordinating their efforts and integrating their functions in the interests of greater efficiency and service to the patient.
   - (*f*) Diagnostic clinics, outpatient services and home medical care and allied programs should be developed more extensively in extending health services for all.
   - (*g*) Hospitals should intensify and extend their basic activities in research and education.
   - (*h*) Preventive medical and dental service, and public health education should be carried out more widely as regular functions of the modern hospital.

     So far as possible, the general hospital should provide facilities for the care of all types of illness, with increased attention to the diagnosis and treatment of the patient with long term illness.
   - (*j*) The pressing need for additional facilities for the care of the mentally ill and persons with chronic diseases in general hospitals makes it necessary that special emphasis be given to this problem in the original state hospital plans and any revision of these plans under Public Law 725. A careful study to develop recommended standards is needed in this area for the guidance of state organizations under this Act.
   - (*k*) To develop and adequately meet good standards of patient care, it is recommended that all hospitals, nursing homes and other facilities for the care of the sick should meet at least minimum standards through the mechanism of licensure.
   - (*l*) The control of local facilities should be by the people in that locality on a cooperative or community basis, where possible with an elected board of directors, representative of lay and professional groups.
   - (*m*) Lay and professional organizations and governmental agencies should join in conducting a health education program and in developing plans for adequate facilities and health services which will include well coordinated and highly integrated networks of mobile units, clinics, community hospitals, district hospitals, regional hospitals and great medical centers.
3. That each state agency operating under the Hospital Survey and Construction Act consider carefully the advisability of organizing a rural hospital subcommittee, having representation from the major general farm organizations within the state and from the state land grant college, to advise the state concerning matters of importance in rural areas.
4. That adequate medical service for the prevention of illness, the care and relief of sickness and the promotion of a high level of physical and mental health should be available to all without regard to race, color, creed, residence or economic status.
5. That the principle of contributory health insurance should be the basic method of financing medical care for the large majority of the American people, in order to remove the burden of unpredictable sickness costs, abolish the economic carrier to adequate medical services and avoid the indignities of a means test.
6. That health insurance should be accompanied by such use of tax funds as may be required to:
   - (*a*) Furnish services which are public responsibilities.
   - (*b*) Supplement health insurance as necessary to provide adequate services for the whole population.
7. That voluntary prepayment group health plans organized on a community or collective bargaining level, embodying group practice and providing comprehensive service offer to their members the best modern medical care and are the best available means at this time of bringing about improved distribution of medical care in rural areas and should therefore be encouraged by every means.
8. That the people have the right to establish voluntary insurance plans on a cooperative basis and legal restrictions upon such right, now existing in a number of states, should be removed.
9. That high standards of service, efficient administration and reasonable costs require:
   - (*a*) Coordination of the services of physicians, hospitals and other health agencies in all phases of prevention, diagnosis and treatment.
   - (*b*) Efficient cooperation between the providers and the consumers of such services under the general principle that the responsibility for general policies, finances and administration should rest preponderantly on the lay group; for professional standards and procedures, upon the professional group; for mutual consultation on all matters of joint interest, upon both groups.
10. That the farm organizations, through the Conference Committee on Rural Health Services or other appropriate channels, explore the advisability of calling on the research and other resources of the U. S. Department of Agriculture and the land grant colleges in cooperation with health agencies to map out plans and programs for the continuous recruitment, training, distribution and financial support of doctors and other health workers in rural areas.

COMPULSORY HEALTH INSURANCE

WHEREAS, Voluntary health plans are making rapid progress and these plans are generally run efficiently and to the satisfaction of members; therefore be it

Resolved, That people with comprehensive voluntary health service be exempted from any plan for compulsory health insurance should such health program be established.

EDWARD F. HOLTER.
GEORGE SEHLMEYER.
JOHN F. JOHNSTON.
MRS. ZOLA KEITH.
MRS. ESTHER SEFFREN.
MRS. MABEL CARR.

Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.
American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.
American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.
American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.
American Association of Industrial Physicians and Surgeons, Detroit, Book-Cadillac and Statler Hotels, April 5-9. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.
American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.
American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.
American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.
American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4, Secretary General.
American Industrial Hygiene Association, Detroit, Book-Cadillac and Statler Hotels, April 5-7. Dr. Henry F. Smyth Jr., 4400 Fifth Ave., Pittsburgh 13, Executive Secretary.
American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary
American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.
American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.
American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6. Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary.
American Otological Society, New York, May 18-19. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.
American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.
American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.
American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Yale Hospital, Atlanta 3, Georgia, Secretary.
American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.
American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.
American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.
American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.
American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.
Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.
Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.
Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.
California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.
Connecticut State Medical Society, New Britain, State Teachers' College, May 3-5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.
Florida Medical Association, Belleair, April 10-13. Dr. Robert B. McIver, 111 West Adams St., Jacksonville, Secretary.
Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.
Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.
Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.
Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.
Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.
Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.
Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.
Medical Library Association, Galveston, Texas, April 10-14. Miss Mildred R. Crowe, Medical College of Alabama Library, Birmingham 5, Ala., Secretary.
Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.
Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.
Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.
National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.
Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln 8, Nebraska, Secretary.
New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.
New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.
New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.
North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.
Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.
Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.
Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.
Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.
Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.
Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.
Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.
Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.
Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bills Introduced.—H. 184, to amend the law relating to public institutions, proposes that in any state or county institution supported wholly or in part by public funds in which hospital service is rendered or health treatments administered, **licensed chiropractors** shall be accorded equal rights and privileges with licensed practitioners of medicine and surgery and that the treatment of any patient therein who may so elect shall include without distinction, favor or discrimination the treatments, manipulations, adjustments and other services of a licensed chiropractor. Discrimination of the type prohibited by this proposal would constitute cause for the summary removal of any public officer or employee permitting or participating in such discrimination. H. 279 proposes the **creation of a lien** in favor of a hospital against any cause of action which an injured person might have, to the extent of hospital care and treatment furnished to such injured person. S. 100 proposes the enactment of a new **osteopathic practice act.** Licentiates under this act would be permitted, among other things, to perform the same duties and obligations and authorized to exercise all the same rights and privileges possessed by physicians and surgeons of other complete schools of medicine in the practice of their profession, except that no osteopathic physician or surgeon shall perform major surgery unless he has had two years of surgical training in a hospital approved for such training by the board or shall demonstrate to the board equivalent training, and the board shall certify in writing to the applicant his right to perform major surgery before engaging in any such duties.

Arkansas

Bill Enacted.—H. 23 has become act No. 131 of the Acts of 1949. It creates a **financing board** for Arkansas medical students and makes provisions for loans to medical students conditioned upon the recipient's residing in and practicing his profession in a community in Arkansas with a population of 2,000 or less for a period of five years following the completion of his internship.

California

Bills Introduced.—A. 2242 proposes a number of amendments to the **chiropractic practice act** among which is the following definition: "The practice of chiropractic shall consist of any or all acts essential to the application of chiropractic principles. Said acts are directed chiefly to the proposition of adjusting vertebral subluxations for the purpose of reducing obstructive pressure upon nerves where they lie in intervertebral foramina, or for reducing pressure upon the spinal cord." Chiropractic adjustment is defined as the voluntary and specific reestablishment of proper vertebral relationship for the purpose of correcting obstructive pressure upon spinal nerves or the spinal cord and chiropractic utilities would be construed to mean any device, system, method or manner of procedure intended to facilitate the application of chiropractic principles in determining the presence or absence and correction of obstructive pressure on nervous tissue and/or the environmental stresses which initiate the adaptive changes causing such obstructive pressure, or the disclosure of any fact or facts consistent with the theory of chiropractic as defined in other provisions of the proposal. A. 2337, to amend the business and professions code, proposes the creation of a **California state board of psychologist examiners.** Certificates issued by this board would entitle a person to counsel, analyze and treat by methods usually employed by psychologists those patients who suffer from nervous and psychological conditions not definitely diagnosed as pathologic. A. 2789, to amend the labor code, proposes that the term physician shall include **drugless practitioners.**

Missouri

Bills Introduced.—H. 113, to amend the medical practice act, proposes to authorize the revocation of a license upon proof that a licentiate has accepted **in addition to his fee any rebate,** commission or any other type of payment, either directly or indirectly, in connection with the writing or filling of a prescription, except in those cases in which a licentiate

compounds or dispenses his own prescriptions. H. 121 proposes to direct the curators of the University of Missouri to establish and conduct a **medical and surgical school** with a full and complete course of medical and surgical instruction.

New Jersey

Bill Introduced.—A. 347 proposes the creation of a **board of chiropractic examiners** and defines chiropractic as the theory and practice of nerve impulse control by vertebral adjustment by hand only for the purpose of removing a cause of disease. A licensee under this proposal would have the right in the examination of patients to use the neurocalometer, x-ray and other instruments necessary solely for the purpose of diagnosis or analysis.

New York

Bills Introduced.—A. 1871, to amend the public health law, proposes that every physician shall give notice to the health officer of the county, city, town or village wherein such person resides of every case of **cerebral palsy** under his care and of all new cases of cerebral palsy of which he learns. A. 2128 and S. 1929, to amend the education law, proposes the creation of a state **board of chiropractic examiners** and defines chiropractic as the science of locating and the removing of nerve interference in the human body, according to chiropractic principles, where such interference is the result of or caused by misalignment or subluxations of the vertebral column. A. 2233, to amend the education law, proposes regulations for the examining and licensing of persons desiring to practice **naturopathy** and proposes that a license to practice naturopathy shall not permit the holder thereof to administer internal toxic drugs or to perform major surgery. A. 2894 proposes to prohibit the sale of **"lithium sodium"** except on prescription by a person legally authorized to issue such prescription. A. 3030, to amend the education law, proposes to include within the definition of the practice of medicine the administration of anesthesia or **the practice of anesthesiology.** S. 1836, to amend the education law relating to the **definition of the practice of medicine,** proposes to include within such definition diagnosing, treating, operating or prescribing for mental or nervous disorders. S. 2023, to amend the education law, proposes to define the practice of medicine so as to include the **practice of naturopathy.** The proposal would also add a naturopath to the state board of medical examiners. Applicants for a license to practice naturopathy would be required to submit to an examination by the state board of medical examiners except that they would not be examined in major surgery and their license would not permit them to administer internal toxic drugs or to perform major surgery. S. 2045 proposes to create a lien in favor of every duly licensed physician to the extent of **emergency medical or surgical aid** or treatment rendered to persons injured as the result of negligence of any other person. S. 2196 proposes regulations for the licensing of unincorporated hospitals and **lying-in asylums.** S. 2402 proposes to authorize **hospitals supported in whole or in part by public funds** or by the solicitation of private subscriptions to which patients are admitted upon payment of a charge or fee or at which persons receive medical and/or surgical treatment upon payment of a charge or fee to employ physicians and/or surgeons under a contract or salary arrangement for the medical diagnosis and/or treatment of patients only when such diagnosis and/or treatment is a public charge. In all other cases such medical diagnosis and/or treatment shall be rendered to patients in such hospital independently of other hospital charges and under contractual relationship between the patient and the physician.

North Dakota

Bill Enacted.—S. 148 was approved Feb. 26, 1949. It amends the traffic law relating to persons operating motor vehicles while under the influence of **intoxicating liquor** by setting forth classifications of percentages established as the result of chemical tests of the defendant's blood and permits the results of such chemical tests to be admitted in evidence. No defendant, however, shall be required to submit to any chemical test without his consent.

Oklahoma

Bill Introduced.—S. 188 proposes the creation of a **lien in favor of hospitals** against cause of actions accruing to patients, to the extent of the hospital care furnished to such person. The lien created by this proposal would extend also to physicians for medical services rendered.

Oregon

Bill Introduced.—S. 338 proposes that no person shall furnish any **dangerous drug** except upon the prescription of a physician, dentist or veterinarian. "Dangerous drug" is defined to include hypnotic drug (acetylurea derivatives, barbituric acid or malonylurea derivatives, chloral, paraldehyde, phenylhydantoin derivatives), aminopyrine, amphetamine, cinchophen, diethyl-stilbestrol, ergot, oils of croton, rue, savin or tansy, sulfanilamide, extracts of glandular preparations, phenol and penicillin.

Pennsylvania

Bills Introduced.—H. 412 proposes amendments to the workmen's compensation act which would result in the enactment of an **occupational disease act.** H. 450 and H. 451 propose that medical service plan corporations shall include the services of **doctors of osteopathy.** H. 466 proposes the enactment of a **permissive sterilization act.** H. 502 proposes the **creation of a state laboratory** for the purpose of rendering assistance to the different coroners throughout the commonwealth in their investigation of all cases where death is sudden or violent and is of a suspicious nature and character to ascertain whether death was due to other than natural causes and in rendering assistance in all cases where autopsies are necessary and for the purpose of rendering toxicologic examinations of foodstuffs for the department of health in connection with outbreaks of gastroenteritis due to the ingestion of contaminated food. The chief of such laboratory would be required to be a legally qualified doctor of medicine duly trained to do pathologic work. H. 529, to amend the law relating to the treatment of **mental diseases and epileptics** in state hospitals, proposes that the word "qualified physician" shall mean a person licensed to practice osteopathy. H. 626 proposes to require every physician who treats or examines any blind person or persons with **impaired vision** approximating blindness to make a written report thereof to the department of welfare. H. 808 proposes the creation of a **lien in favor of hospitals** against causes of action possessed by patients therein, to the extent of services furnished to such patient by the hospital. S. 278 proposes to authorize the department of health to license institutions desiring to obtain from any pound in the jurisdiction **live dogs and cats** for the purpose of carrying on scientific and educational research activities. S. 279 would require all persons desiring to **practice osteopathy** in the state to undergo the same examination as that taken by physicians and surgeons and would repeal the existing osteopathic act except so far as it applied to persons already licensed thereunder. S. 280 proposes to increase the size of the state board of medical education and licensure by the **addition of an osteopathic member** and proposes that the powers and duties of the state board of osteopathic examiners and the osteopathic surgeons' examining board shall be taken over by the state board of medical education and licensure. S. 345 proposes to make it a misdemeanor for any person to experiment or operate in any manner whatsoever upon any **living dog or cat** for any purpose other than healing or curing such dog or cat. S. 385 proposes the creation of a **lien in favor of hospitals** on the proceeds of insurance policies for services rendered to persons injured in accidents entitled to payments from such proceeds.

Vermont

Bill Introduced.—H. 183 proposes that the medical practice act shall not prevent a duly licensed physician or surgeon of an adjoining state or of the Dominion of Canada from **coming into a town bordering thereon in this state** for the purpose of treating a sick or disabled person therein.

Washington

Bills Introduced.—H. 224 proposes the creation of a **medical disciplinary board** to hear and determine charges of unprofessional conduct against persons licensed to practice medicine and surgery. H. 252 proposes regulations for the licensing of hospitals and related institutions, and the appointment of a **state hospital council.** The proposal is broad enough to cover private as well as state and government operated institutions within the state. H. 258 proposes that any physician or surgeon performing an operation **shall make a written diagnosis** of the patient's condition and set forth therein the purpose of said operation stating what organs, glands or tissues are to be removed. A copy of this diagnosis shall be given to the patient or to his or her relative or designated agent and a copy shall be mailed or delivered to the health department. All excised parts, glands or tissue must be kept in a carefully labeled receptacle and properly preserved for a period of ten days after removal and must be delivered on written demand from the patient, relative or agent to whomsoever they designate. The proposal further makes it a misdemeanor for any physician or surgeon to perform an unnecessary operation, which is defined to mean a surgical operation performed in which no pathology was found to exist in parts removed or a surgical operation performed in pursuance to a wrong diagnosis or a surgical operation from which the patient could not reasonably be expected to receive the relief desired and as diagnosed. H. 261 proposes that the University of Washington School of Medicine be required to teach **courses in naturopathy, osteopathy and surgery, chiropractic, sanipractic, physio-medicine and surgery** and any other branch of the healing arts that is incorporated or the members of which are licensed to practice their respective professions in the state of Washington. H. 283 proposes to authorize the director of licenses to appoint a committee of examiners for **the practice of massotherapy,** which is defined as the method, art or science of treating the human body for hygienic or remedial purposes to maintain health and to establish a normal condition of the body and shall include all massage manipulations, passive and active remedial gymnastics and relaxing movements and manipulations with the hands or with any other agency or instrumentality designed to accomplish massage manipulations or gymnastics, or by mechanical gymnastics to promote physiologic action to bring about a normal condition of health and restore bodily functions to a normal condition. Licentiates would be permitted also to use electrotherapy, hydrotherapy and physical therapy as defined by the proposal. H. 304 proposes to require every hospital on demand to **render first aid** to any person requiring emergency assistance and would make the hospital and any physician or agent of the hospital liable for damages caused by the refusal so to do. H. 329 proposes to make it an act of **unprofessional conduct** for any person licensed to practice medicine and surgery, drugless treatment in any form or dentistry to accept any rebate, refund, commission or unearned discount, whether in the form of money or otherwise, as compensation for referring patients to any person, firm, corporation or association. H. 363, to **amend the medical practice act,** proposes that applicants must have graduated from a medical school having standards no less than the standards of the Medical School of the University of Washington. H. 399 proposes the establishment of **cancer clinics** at various places throughout the state and authorizes the state director of health to appoint physicians to serve at such clinics on such terms and compensation as the state director of health shall determine. H. 493 proposes the enactment of a hospital survey and construction act for the purpose of making an **inventory of existing hospitals,** a survey of additional needed facilities and the development and administration of a construction program for such needed facilities. The Director of the State Department of Health is designated as the agent to apply for and receive federal funds to assist the state in its project and is also directed to appoint an Advisory Hospital Council to advise and consult with the department of health in carrying out the administration of the act. H. 550 proposes to permit the board of medical examiners to accept the certificates of the **National Board of Medical Examiners** from applicants for licensure to practice medicine in the state. S. 233 proposes to require state boards and agencies to accept the services of **licensed optometrists** for any service covered by their licenses on the same basis and on a parity with any other person authorized by law to render similar professional service.

GOVERNMENT SERVICES

ARMY

THE ARMY NEEDS SPECIALISTS

Specialists to fulfil current requirements of the Army Medical Department are needed in all fields. In the fields of allergy, cardiology, gastroenterology, pulmonary diseases and neurosurgery the Army does not have a board-certified specialist, although officers in each of these fields are in training for certification by these boards. Commissions in the Medical Corps, both regular and reserve up to and including the rank of lieutenant colonel, are available in these fields for qualified civilian physicians depending on length of experience. As of January 25, the Medical Department had 143 regular officers and 10 civilian component officers on active duty who were certified by American specialty boards. This is an increase of 51 from the date of the last published survey, Sept. 1, 1947.

THE HOSPITAL AT SAULT SAINTE MARIE

Since September 1944, the former army station hospital at Sault Sainte Marie, Mich., has been in use as a state mental institution. As the lease held by the state expires next September, a conference was held February 8, with the Assistant Secretary of the Army, Gordon Gray, the Governor of Michigan, G. Mennen Williams, Senator Homer Ferguson, Representative Charles E. Potter, several Michigan state legislators and other representatives of the State of Michigan. The Assistant Secretary of the Army assured the Michigan delegation that he will do what he can under established budgetary procedures to put the Army in a position to construct a permanent installation at Sault Sainte Marie. This, he believed, is the solution to the long range problem, but funds are not now available for such construction. The State of Michigan needs to retain the hospital for use by its mental patients, at least temporarily.

DISTRIBUTION OF THE INDEX-CATALOGUE

The Army Medical Library reports that the distribution of the five volumes of the Index-Catalogue of the Surgeon-General's Office published during the war years has been completed, except for a few libraries in Germany, mostly in the Russian Zone, and a few other libraries. Remarkably few sets of the Index-Catalogue were completely destroyed during the war. Lost entirely were those in the Philippine Islands, Torino, Karlsruhe, Kiel, Münster, Munich and some of those in Berlin; partially lost were the sets in Amsterdam, Freiburg im Breisgau and some other libraries.

NURSE CORPS CELEBRATES FORTY-EIGHTH ANNIVERSARY

On February 2 the Army Nurse Corps celebrated its forty-eighth anniversary as part of the United States Army.

The Surgeon General, Major General Raymond W. Bliss, said that with the passing of the years, each of the ten surgeons general who have served the Medical Department since the Army Nurse Corps was established has found increasing value in the contributions made by women in the Medical Department. "First, we had only nurses, then we included dietitians, then physical therapists and now occupational therapists. Ours is a medical team, but because of the sincere efforts of the Army Nurse Corps through the years, we are including more and more women in our fold."

General Lucias D. Clay, Commander in Chief, European Command, said, "Army nurses in Normandy went in directly behind the first wave of assault troops to land in France. They waded ashore June 6, 1944, a few hours after the invasion, and set up dressing stations in pup tents on the beach where they ministered to the wounded. The world remembers the valor and courage of the Army nurses who served on Bataan and Corregidor."

General Omar N. Bradley, Chief of Staff, said, "In our effort to make the Army a better place to live and work, with greater understanding in its relationships, with a more selfless devotion to our duty and our fellow soldiers, we can take as an example the accomplishments of the nurses who have served with the Army throughout the world, in peace and war, for so many years."

General Douglas MacArthur, Commander in Chief of the Far East Command, from Tokyo sent a message saying, "I join with all ranks of commands in grateful tribute to the 48 years of devoted national service the Army Nurse Corps has rendered in ministering to sick and wounded. In war and in peace—through the grim ordeal of battle and the lull which has followed—it has built a noble tradition of service, sacrifice and valor."

General Jacob L. Devers, Chief, Army Field Forces, said, "The thousands of World War II Army Nurses who served nobly with the Ground Force combat units overseas, enduring the hardships and dangers, . . . were a constant source of inspiration to the fighting men who knew that you were helping to give them the best medical care that this nation could provide."

INDEX COMMITTEE MEETING

The Committee of Consultants for the Study of Medical Indexing held its third meeting January 14, in the Library of Congress, Washington, D. C. The following working subcommittees were formed from the main committee: Need for Medical Indexes, Dr. Chauncey D. Leake, chairman; Use of Medical Indexes, Miss Janet Doe, chairman; Scope and Coverage of Medical Indexes, Dr. John F. Fulton, chairman, and Techniques in Indexing, Dr. Mortimer Taube, chairman. The Committee will hold its next meeting March 11.

ACCEPTED FOR ADVANCED TRAINING

The following Medical Corps officers have been accepted for advanced classes in civilian schools and hospitals indicated:

Name and Rank	Institution	Course
Frank A. Mantz, Major	Massachusetts General Hospital, Boston	Fellowship in pathology
Edwin J. Pulaski, Major	Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Radioisotope technics
John W. Braasch, First Lieut.	Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Radioisotope technics
Robert F. Newton, First Lieut.	Hartford Hospital, Hartford, Conn.	Residency in pediatrics
John M. Cahill, First Lieut.	Boston City Hospital, Boston	Residency in surgery
James B. Elkins, First Lieut.	Alexandria Hospital, Alexandria, Va.	Assistant resident in obstetrics
Jose Cerra-Quinones, First Lieut.	Graduate School of Medicine, University of Pennsylvania, Philadelphia	Postgraduate course in obstetrics and gynecology
Alan I. Blumberg, First Lieut.	Jewish Hospital, Philadelphia	Residency in pathology
Robert G. Gildersleeve, First Lieut.	South Baltimore General Hospital, Baltimore	Residency in general surgery
Donald J. Caseley, First Lieut.	Indiana University Medical Center, Indianapolis	Intern training
John F. McGarry, First Lieut.	Ball Memorial Hospital, Muncie, Ind.	Intern training
Anthony J. Puglisi, First Lieut.	Grasslands Hospital, Valhalla, N. Y.	Intern training

NAVY

EXAMINATIONS FOR APPOINTMENT IN MEDICAL CORPS

Examinations for the selection of candidates for appointment to the grade of lieutenant (junior grade) in the Medical Corps of the Navy will be conducted at all Naval hospitals in the United States, April 4-8, 1949. Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete such training within four months of the date of the examination, and who are physically and otherwise qualified, may be examined for appointment if less than 32 years of age. They will be required to appear before boards of medical examiners and supervisory Naval examining boards at the Naval hospital nearest their residence. Following approval by the President of the United States and confirmation by the Senate, selected candidates will be issued appointment and orders assigning them to active duty. As a result of the authorized additional compensation of $100 a month for medical officers, a lieutenant (junior grade) in the Navy Medical Corps receives pay and allowances totaling $5,011 a year if married and $4,575.50 if without dependents. Information concerning the procedure of application may be obtained from the nearest Naval Officers Procurement Office or from the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. (Attn: Code-3424).

FIRST ACTIVE DUTY AS INTERNS

The following lieutenants (jg) in the Medical Corps Reserve have been ordered to their first active duty as interns in civilian institutions under the Navy's graduate medical training program:

Name	Residence	Institution
Barth, Robert L.	New Washington, Ohio	Indianapolis General Hospital, Indianapolis
Bartzen, Peter J.	Milwaukee	Milwaukee County Hospital
Beaven, William E.	Rochester, N. Y.	Union Memorial Hospital, Baltimore
Berry, Paul T.	St. Louis	St. Luke's Hospital, St. Louis
Foster, Claude F., Jr.	Oklahoma City	St. Anthony Hospital, Oklahoma City
Herring, Edwin B.	Dundee, Miss.	John Gaston Hospital, Memphis, Tenn.
Maxson, Eugene S.	Alhambra, Calif.	Glendale Sanitarium and Hospital, Glendale, Calif.
McKelvey, Joseph S.	Bellaire, Ohio	University of Pittsburgh Medical Center
McKinney, James E.	Atlanta, Ga.	Charity Hospital of Louisiana, New Orleans
Montgomery, Wayne S.	Detroit	Harper Hospital, Detroit
Rholl, Arnold O.	Minneapolis	Northwestern Hospital, Minneapolis
Rogers, Malcolm E.	Gilbertown, Ala.	Naval Hospital, Portsmouth, Va.
Simpson, Arthur M.	Toledo, Ohio	Wesley Memorial Hospital, Chicago
Stone, Bernard B.	Revere, Mass.	Worcester City Hospital, Worcester, Mass.
Taylor, Clayton B.	Madera, Calif.	General Hospital of Fresno County, Fresno, Calif.
Walzer, Mackenzie	Darien, Conn.	Massachusetts General Hospital, Boston
Wilkinson, Ernest L.		Johns Hopkins Hospital, Baltimore

MEDICAL ASPECTS OF SPECIAL WEAPONS AND RADIOACTIVE ISOTOPES

One hundred and seventy-five Naval reserve medical officers comprised the second class for the five day course in medical aspects of special weapons and radioactive isotopes, which convened at the Naval Medical School, Bethesda, Md., February 14. In addition to speakers from the Naval Medical Center, the instructors comprised representatives from the Atomic Energy Commission, U. S. Public Health Service and the following civilian scientists: George Gamow, Howard Andrews, J. B. Trunnell, C. F. Geschickter, Herbert Friedman, L. D. Fothergill, Francis Gordon, Leslie Chambers, Philip H. Abelson, Shields Warren and William F. Sullivan.

POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for postgraduate instruction in residencies at the institutions indicated: Comdr. Earl J. Palmberg of Red Oak, Iowa, ophthalmology, Naval Hospital, San Diego, Calif.; Lieutenants (jg) Edward Martin Jr. of Boston, anesthesiology, Naval Hospital, Chelsea, Mass.; Anthony P. Prezyna of Lackawanna, N. Y., pathology, Naval Hospital, Bethesda, Md., and Charles E. Rogers of Milwaukee, surgery, Naval Hospital, St. Albans, Long Island, New York.

Comdr. David Singer of San Diego, Calif., and Lieut. Edward D'Orazio of Steubenville, Ohio, both reserve officers, have been voluntarily recalled to active duty to receive postgraduate instruction under the Graduate Medical Training Program as residents in internal medicine and pediatrics at the Naval Hospital, Long Beach, Calif., and the Naval Hospital, Chelsea, Mass., respectively.

NEW REGULAR OFFICERS

The following medical officers have transferred from an active reserve status to the Medical Corps of the Regular Navy: Commander Charles A. Castle of Watertown, South Dakota; Commander Berger Thomas of Columbus, Ohio; Lieutenants (jg) Benjamin F. Burns of Pasadena, Calif.; Harold W. Garvin of Mascoutah, Ill.; Albert M. Jenkins of Norwood, Ohio, and Stuart D. Kustermann of Minneapolis.

RESERVE OFFICERS ON ACTIVE DUTY

The following reserve medical officers have voluntarily been recalled to active duty: Capt. Edwin C. Swift of Jacksonville, Fla.; Comdr. Wilbur W. Westfall of Somerset, Pa., and Lieut. Comdr. Meshel Rice of Detroit.

Comdr. Jacob G. Hebble and Lieut. Bruce H. Smith Jr. have been nominated for courses in postgraduate instruction at the Illinois Neuro-Psychiatric Institute, Chicago, and the New England Deaconess Hospital, Boston, respectively.

VETERANS ADMINISTRATION

MILLIONS OF PRESCRIPTIONS

During 1948, some 4,000,000 prescriptions for veteran-patients were filled by privately owned pharmacies and those operated by the Veterans Administration. According to E. Burns Geiger, chief, pharmacy division of the Veterans Administration, about 500,000 of these prescriptions were filled by 25,000 privately operated pharmacies throughout the country which take part in the Veterans Administration home town pharmacy program, while the remaining 3,500,000 prescriptions were filled by 333 pharmacists in Veterans Administration hospitals, homes and regional offices. Private pharmacists have been authorized under agreement between the Veterans Administration and the state pharmaceutic associations in forty-six states, the District of Columbia and Hawaii, to fill prescriptions at government expense for veterans undergoing outpatient treatment for a service-connected ailment.

PERSONAL

The new director of the Veterans Administration Library Service is Foster E. Mohrhardt, formerly associate professor of library science at Columbia University and librarian at Washington and Lee University. Mr. Mohrhardt, a native of Michigan, succeeds Francis R. St. John, who resigned December 17 to become affiliated with the Brooklyn public library.

Dr. James S. Cullyford, chief of medical services in the regional office in Denver, was recently decorated by the Netherlands Government for outstanding service to the Dutch people held in German concentration camps during the war. Dr. Cullyford served with the Twelfth Army Group in Europe after D-Day as public health officer in the civil affairs section and was responsible for the medical care of inmates in certain prison camps.

PUBLIC HEALTH SERVICE

CONFERENCE ON TUBERCULIN AND HISTOPLASMIN SENSITIVITY

A conference was held February 2-3 in Washington, D. C., at the invitation of the Division of Tuberculosis of the Public Health Service, to consider the prevalence of tuberculin and histoplasmin skin sensitivity among young adults. In addition to the staff of the Field Studies Branch of the Division of Tuberculosis, the following persons attended the conference: Drs. Ralph I. Canuteson, University of Kansas; L. M. C. Luykx, New York University; John A. Prior, Ohio State University; Comdr. R. O. Canada, U. S. N., Washington, D. C.; Drs. G. A. Cronk, Syracuse University; J. A. Meyers, University of Minnesota; Max L. Durfee, Miami University, Oxford, Ohio; W. G. Beadenkopf, University of Chicago, and Capt. Samuel Saslaw, M. C. A. U. S.

The conference indorsed the proposal of the chief of the branch, Dr. Carroll E. Palmer, that steps be taken to organize a broad study of the distribution of tuberculin and histoplasmin sensitivity among young adults in the United States through skin tests and roentgen examinations of university and college students.

DR. HARRISON TO RETIRE

Dr. Walter T. Harrison, for many years a commissioned officer in the Public Health Service, is now on terminal leave and will retire from the service on July 1. Dr. Harrison was first commissioned in the U. S. Public Health Service in 1916. Among his many important assignments was service at the Hygienic Laboratory, Washington, D. C., the predecessor of the National Institutes of Health, where he carried on research on diphtheria immunization. His last assignment has been medical director for Region 10, which includes Arizona, California, Nevada, Oregon, Washington, Alaska and Hawaii. Dr. Harrison also was a member of the Permanent Commission on Biological Standardization of the health organization of the League of Nations. In 1937 he lectured at Vanderbilt University School of Medicine, Nashville, Tenn., on immunology and the use of biologic products.

NEW SECTION ON EXPERIMENTAL THERAPEUTICS

Surgeon General Scheele has announced the appointment of Dr. Harry Eagle as chief of the new Experimental Therapeutic Section in the National Institutes of Health; other personnel in the new section include many of the research men who were associated with Dr. Eagle when he was director of the Laboratory of Experimental Therapeutics, a joint project of the Public Health Service and the Johns Hopkins School of Hygiene. In order to devote full time to this field, Dr. Eagle will relinquish his position as scientific director of the National Cancer Institute, where he has been in charge of research activities since July 1947.

MISCELLANEOUS

SEMINAR ON DISPOSAL OF RADIOACTIVE WASTES

A two day seminar on disposal of radioactive wastes sponsored by the United States Atomic Energy Commission was held in Washington, D. C., January 24-25. In discussing health problems in atomic energy activities, Dr. Shields Warren, director, division of biology and medicine of the Atomic Energy Commission, said it is possible to detect radioactivity at levels far below those dangerous to human beings and that the problems dealt with are not unknown hazards. The prime objective of the radioactive waste disposal program is to prevent radioactive materials from being absorbed by human bodies, and, to the best of his knowledge, the precautions being used at atomic energy sites are giving adequate protection.

Dr. Austin Brues, director of biology and medicine at the Argonne National Laboratory, Chicago, said that in the matter of external total body radiation, the standardized tolerance level is 0.1 r per day. This applies to persons exposed to radiation continuously, day in and day out. Persons who do not receive continuous exposure can tolerate single doses of radiation of many roentgens without detectable damage, and for certain pathologic conditions radiation treatment requires doses far beyond any that can be tolerated normally.

The director of engineering, Roger S. Warner, and Arthur V. Peterson of the production division of the Atomic Energy Commission said that the low permissible limits for radioactivity discharged into soil, air or water are usually met through technics of dispersion and dilution and use of normal industrial decontaminating devices, such as filters and scrubbers. The high level wastes produced at the great atomic energy production centers are held at the site until the radioactivity decays, and this material is held indefinitely or is reprocessed for its highly valuable components.

The director of the Health Physics Division, Oak Ridge, Tenn., National Laboratory, Dr. Karl Z. Morgan, said that after the radioactive wastes from the plants at Oak Ridge were discharged into the Clinch River the level of radioactivity in the river was considerably less than that in many of the mineral waters widely used in the United States for drinking purposes, and that the amount of radioactivity contributed from all Oak Ridge operations to the atmosphere of the neighboring area is less than the added cosmic radiation exposure one receives in going from sea level to Denver at 5,000 feet elevation.

Dr. C. C. Ruchhoft of the United States Public Health Service discussed the possibilities of developing concentration methods for radioactive liquid waste treatment by biologic processes similar to those now used in sewage treatment, which possibilities, he said, appear promising.

Dr. Abel Wolman, director, Department of Sanitary Engineering, Johns Hopkins University, Baltimore, predicted that the sanitary engineer and the water and sewage plant operators in the future will take on the function of protecting the water supply and the atmosphere of communities against the hazards of contamination by radioactive wastes, just as they now protect communities against air and water pollution. He said that it was necessary for sanitarians to begin at once to learn the new words associated with radioactive wastes and to become acquainted with the instruments used to measure the degrees of radioactivity.

LAWRENCE HAFSTAD MADE DIRECTOR OF REACTOR DEVELOPMENT DIVISION

The U. S. Atomic Energy Commission has appointed Dr. Lawrence R. Hafstad as Director of the Reactor Development Division. It is principally through the development of reactors that the commission expects in coming years to develop a means for utilizing the energy released by nuclear fission.

Dr. Hafstad has been on leave of absence from Johns Hopkins University, where he is Director of Research of the Applied Physics Laboratory at Silver Spring, Md., in which laboratory he helped perform much of the work leading to development of the proximity fuse. His duties with the Atomic Energy Commission include responsibility to General Manager Carroll L. Wilson for the activities of the Chicago Operations Office, which gives administrative support to the Argonne National Laboratory, the center of reactor development, and the program at Knolls Atomic Power Laboratory at Schenectady, N. Y.

Dr. Hafstad was born in Minneapolis and was graduated from the University of Minnesota in 1926; since July 1, 1948, he has been executive secretary of the Research and Development Board, in which position his successor will be Robert F. Rinehart, since July 1, 1948 director of the Board's planning division.

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Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Public Lectures at Stanford.—Stanford University School of Medicine is presenting its sixty-seventh course of Popular Medical Lectures by members of its faculty at Lane Hall in San Francisco, Wednesday evenings at 8 p. m.:

March 30, Roy B. Cohn and Herbert N. Hultgren, Diagnosis and Treatment of Congenital Heart Disease.
April 6, Charles E. McLennan, Cancer of the Uterus.
April 20, William McD. Hammon, Poliomyelitis: Means of Spread and Control.
April 27, Alfred E. Maumenee Jr., San Francisco, Prevention and Treatment of Blindness in Childhood.

Dr. John A. Anderson to Head Pediatric Department.—Dr. John A. Anderson, professor and chairman of the department of pediatrics and communicable diseases at the University of Utah College of Medicine, Salt Lake City, will join the faculty of the Stanford University School of Medicine, Stanford University-San Francisco, September 1, succeeding Dr. Harold K. Faber as professor and head of the pediatrics department. Dr. Faber becomes professor emeritus in September.. Dr. Anderson received his M.D. in 1933 and his Ph.D. in 1940 at the University of Minnesota. He interned at Minneapolis General Hospital 1933-1934 and the following year was a research assistant in pediatrics. After two years as a Commonwealth Club Fellow of the Child Research Council in Denver, he rejoined the Minnesota Medical School faculty in 1937; he accepted the pediatrics post at Utah in 1943.

COLORADO

Institute on Epilepsy.—The First Western Institute on Epilepsy will meet at the University of Colorado Medical Center, Denver, May 16-18. Members of the medical profession, social workers, psychologists and interested laymen are invited. Lectures, clinics and round table discussions will be held. Dr. Jerry Price of the Neurological Institute, New York, will be the keynote speaker. Institute fees will be $5. For information address the Director, Epilepsy Service, University of Colorado Medical Center, Denver.

Fellowship in Industrial Medicine.—The University of Colorado Medical Center, Denver, is offering a three year fellowship in industrial medicine. The course will give advanced training in industrial medicine leading to the degree Doctor of Industrial Medicine. The stipends will be $1,800 and $2,400 for the first and second years respectively. Appointments are made January 1 and July 1. This course is approved by the Veterans Administration for candidates who are eligible under the G. I. Bill of Rights. The first two years will consist of didactic work. Time and facilities for research will be provided, and a thesis will be required. The third year will be spent in training in industry under supervision. The stipend for this year will be announced later. Requirements include graduation from an approved medical school, at least one year of internship training, and preferably at least one year of residency training in one of the specialties or one or more years of practice of medicine. For further information write Frank Princi, M.D., Director, Division of Industrial Medicine, University of Colorado Medical Center, Denver.

FLORIDA

Annual State Medical Meeting.—The Florida Medical Association will hold its annual meeting at Belleair with headquarters at the Belleview-Biltmore Hotel April 11-13, under the presidency of Dr. Joseph S. Stewart, Miami. Visiting speakers will be:

Clarence G. Bandler, New York, Hematuria; Its Clinical Significance.
Michael L. Mason, Chicago, Early Closure of Burned Areas.
Frederick H. Falls, Chicago, Management of Eclamptogenic Toxemia.
Cushman D. Haagensen, New York, Diagnosis of Cancer of the Breast.

The Women's Auxiliary to the state association and a number of specialty groups will also meet at this time.

GEORGIA

Course for General Practitioners.—The University of Georgia School of Medicine, Augusta, in cooperation with the Medical Association of Georgia will give a postgraduate course in medicine and surgery for general practitioners April 11-15 designed to present current ideas concerning the diagnostic and therapeutic problems of general practice. The enrolment is limited, and the registration fee of $15 includes the cost of five luncheons. For information address Director of Postgraduate Education, University of Georgia School of Medicine, University Place, Augusta.

ILLINOIS

Postgraduate Conferences.—The Postgraduate Education Committee of the Illinois State Medical Society has arranged a postgraduate conference for the Second Councilor District March 31 at the Kaskaskia Hotel, La Salle. The district includes Bureau, La Salle, Lee, Livingston, Marshall, Putnam, Whiteside and Woodford counties. On the program, beginning at 1:30 p. m., the following Chicago physicians will speak:

Arkell M. Vaughn, Vagotomy in Treatment of Gastro-Intestinal Ulceration.
Harry M. Hedge, Birthmarks.
Henry G. Poncher, Practical Aspects of Pediatric Therapy.
Chauncey C. Maher, Combination of Gallbladder Disease and Coronary Disease.
Frederick H. Falls, Early Diagnosis of Carcinoma of the Uterus.

There will be a round table discussion from 5 to 5:30 p. m. The dinner speaker will be Dr. Percy E. Hopkins, Chicago, president of the Illinois State Medical Society, on "Voluntary Prepayment Medical and Surgical Care."——A postgraduate conference for the Tenth Councilor District will be held at the Elks Club Du Quoin, April 7, with the following participants:

Kilian F. Fritsch, East St. Louis, Rehabilitation of Victims of Poliomyelitis.
Edward H. Reinhard, St. Louis, Diagnosis and Treatment of Hemorrhagic Disorders.
G. Lynn Krause, St. Louis, Diagnosis and Surgical Treatment of Polypi in the Large Intestine in Infants and Children.
Willard O. Thompson, Chicago, Diseases of the Adrenals.
Harry M. Hedge, Chicago, Birthmarks.

In the evening, Dr. Walter Stevenson, Quincy, will discuss "Crossed Eyes—A Medical and Economic Problem." The Tenth Councilor District comprises Alexander, Jackson, Monroe, Perry, Pulaski, Randolph, St. Clair, Union and Washington counties.

Chicago

Medical Genetics Lectures.—Eight medical lectures on subjects pertaining to human genetics will be given Tuesday evenings at 8 p. m. in Room M-137, Albert Merritt Billings Hospital, from March 29 to May 17. The lectures, open to any one interested, will be delivered with the exception of that of May 10, by Herley H. Strandskov, Ph.D., associate professor of zoology, at the University of Chicago. The schedule is as follows:

March 29, Human Chromosomes; General Genetic Principles; M-N Blood Types; Sickle Cell Anemia.
April 5, Genetics of the A-B Blood Groups.
April 12, Recent Views on the Genetics of the Rh-Hr Blood Factors.
April 19, Role of Heredity in the Etiology of Cancer.
April 26, Genetics and Variations in Mental Characteristics.
May 3, Genetics of Human Populations.
May 10, Robert D. Boche, Ph.D., Chicago, Radiation and Genetics.
May 17, Genetics and Medicolegal Problems.

Northwestern's Faculty and Alumni Reunion.—The annual medical faculty-alumni reunion dinner of Northwestern University Medical School will be held at 6 p. m. May 14, in the Lake Shore Club. Dr. J. Roscoe Miller, retiring dean of the school who will become president of the university in July, will be the guest of honor. The principal speaker will be Dr. Frederick W. Merrifield, a member of the surgery faculties of the medical and dental schools. Representatives of the five-year medical classes of 1904, 1909, 1914, 1919, 1924, 1929, 1934, 1939 and 1944 will have special tables at the dinner, and members of the classes of 1894 and 1899 and this year's graduating class will be guests of the medical alumni association. Reservations may be made through the office of the association, Room 796, Montgomery Ward Building, 303 E. Chicago Avenue, Chicago.

INDIANA

Courses in Roentgenology and Micology.—A course in basic roentgenographic procedure for technicians attached to laboratories of physicians and hospitals will be offered by Purdue University, Lafayette, in cooperation with the General Electric X-Ray Corporation April 4-8. Classes will be held from 1-5 p. m. to accommodate commuting students. J. B. Thomas of the General Electric X-Ray Corporation will be the instructor; other members of the staff will be Dr. Donald C. McClelland and H. George DeKay, Ph.D.

The Industrial Micology Course will be held July 11-23. The afternoon sessions will be devoted to a course in "Physiology of the Fungi." Special evening lectures by practicing industrial micologists will be announced later. Information may be obtained from Merle M. McClure, Coordinator of Adult Education, Technical Extension Division, Purdue University, Lafayette,

KANSAS

Two Postgraduate Courses.—The School of Medicine of the University of Kansas and the Kansas Medical Society have arranged a postgraduate course in anesthesiology April 4-6 at the university in Kansas City. While arranged especially for doctors in practice in Kansas, the course is open to all doctors of medicine. The fee is $20. Guest faculty members include: Drs. Henry K. Beecher, Boston; L. Lafe Bresette, Kansas City; M. Digby Leigh, Vancouver, B. C.; Richard S. McKee, Wadsworth; Stevens J. Martin, Hartford, Conn.; Merritt H. Kimball, Hugh S. Mathewson, Milton C. Peterson, Louis Porter, and Charles H. White, all of Kansas City, Mo.; Floyd C. Taggart, Topeka, and Rolland J. Whitacre, Cleveland.

A postgraduate course in internal medicine, psychiatry and dermatology will be presented March 28-31 at the university in cooperation with the state medical society and the Kansas State Board of Health. Besides members from the University of Kansas, instructors include Drs. Mandred W. Comfort, Rochester, Minn.; John M. Lyon, Denver; Elmer L. Sevringhaus, Nutley, N. J., and Cecil J. Watson, Minneapolis. The program includes a panel discussion in endocrinology. The fee is $25. For registration, address Extension Program in Medicine, University of Kansas Medical Center, Kansas City 3.

KENTUCKY

The Alben W. Barkley Chair of Medicine.—At the University of Louisville School of Medicine a professorship has been established for research into heart diseases to be designated "The Alben W. Barkley Chair of Medicine." Dr. John Walker Moore on his retirement as dean of the Medical School July 1 will assume the professorship. Funds for the first phase of the project will be provided by Vice President Barkley's gift to the university of the $10,000 Collier's Magazine Award which he received last year for distinguished public service. The money is to be used for research in heart disease, from which the Vice President's wife died two years ago. Mr. Barkley stated that he hoped the fund will be increased from other sources until it becomes a substantial foundation for research into heart diseases.

LOUISIANA

Establish Department of Psychiatry and Neurology.—A department of psychiatry and neurology has been established at Tulane University of Louisiana School of Medicine, New Orleans. Dr. Robert G. Heath, formerly of the Neurological Institute, New York, and the psychoanalytical clinic of the Columbia University College of Physicians and Surgeons, will head the department. Facilities will be correlated with community agencies in the New Orleans area, especially those of the social services unit. Graduate training consists of a three year training program for approved physicians in neurology or psychiatry, with psychoanalytical training optional through the New Orleans psychoanalytical group. Research is directed toward coordination between physiologic-biophysical factors in behavior and investigations of local cultural factors. The medical curriculum on the undergraduate level has been expanded to include more courses in neurology and psychiatry.

MASSACHUSETTS

Dunham Lectures.—The Edward K. Dunham Lectures for the Promotion of the Medical Sciences will be presented at the Harvard Medical School, Boston, in the Amphitheater, Building D, by Dr. Wilder G. Penfield, professor of neurology and neurosurgery, McGill University, Montreal, Canada, on "The Cerebral Cortex of Man." The first lecture, "Localization of Function," will be given March 28; on March 30 the subject will be "Ictus Epilepticus (Physiological Observations on the Mechanism of Cerebral Seizures)," and on April 1 "The Anatomy of Hallucinations, Dreams and Memory."

MICHIGAN

Marshall Memorial.—A four bed room at Hurley Hospital, Flint, will be furnished by funds raised as a memorial to Dr. William H. Marshall, Flint, who died Jan. 8, 1948. Funds were collected by a memorial committee of laymen and physicians to establish a project of community and cultural value.

Undergraduate Psychiatric Training.—The U. S. Public Health Service has made a grant of $37,500 to further development of the undergraduate psychiatric training program in Wayne University College of Medicine, Detroit. The fund is to be expended over a three year period in supplementing facilities now available. Dr. John M. Dorsey, chairman of the department of psychiatry, will be in charge of the program.

Sixteenth Annual Clinic.—The West Side Medical Society of Detroit will hold its sixteenth annual clinic May 4 from 10 a. m. to 4 p. m. in the auditorium of the Wayne County General Hospital and Infirmary at Eloise. The following program will be presented:

Clarence E. Umphrey, Detroit, Reactions to New Legislation Proposed by Medicine, Labor and Federal Security.
Edward J. McCormick, Toledo, Can the American Doctor Save Private Enterprise?
Bradley M. Patten, Ph.D., Ann Arbor, Micromoving Picture Records of the First Beats of the Embryonic Heart.
F. William Sunderman, Cleveland, Electrolytes in Health and Disease.
Philip Thorek, Chicago, Intestinal Obstruction.
Thomas L. Pool, Rochester, Minn., Tuberculosis of the Urinary Tract.
Walter S. Priest, Chicago, Management of Patients with Coronary Artery Disease.

There will be no registration fee, and all physicians are invited.

MINNESOTA

Communicable Diseases—New Low Records.—The Minnesota Department of Health reports that compared with the preceding year, 1948 was especially free from communicable diseases. Pneumonia reached a low level of 1,009 deaths compared with a previous low in 1946 of over 1,100 deaths. The 64 influenza deaths in 1948, which were fewer than half the number reported for 1947, also established a new low. Deaths from tuberculosis numbered 503, setting a new all-time low. There were 4 deaths among 28 cases of typhoid reported in 1948 compared with 5 deaths from this disease during the period 1944-1947 inclusive. No case of smallpox was reported in the state during the year; the last death from the disease occurred in 1941. Deaths from diseases most common in childhood include 15 from diphtheria, 14 from whooping cough, 11 from measles and 3 from scarlet fever.

NEW HAMPSHIRE

Personal.—Dr. George H. Stueck Jr., formerly of New York, has been appointed assistant professor of clinical medicine and assistant professor in the physiological sciences at Dartmouth Medical School, Hanover. He was also appointed to the medical staff of the Veterans Administration Hospital, White River Junction, Vt., as chief of research and assistant chief of medicine. Following his four years in the Army Medical Department during the recent war, Dr. Stueck returned to New York and was appointed lecturer in biochemistry and assistant in medicine on the staff of New York University College of Medicine.

NEW JERSEY

Oxford Professor to Lecture.—Dr. Leslie Witts, Nuffield professor of clinical medicine at Oxford University, England, will speak at the Ventnor Clinic staff meeting May 4 at Haddon Hall, Atlantic City, 9 p. m. on "The Teaching Hospital and the National Health Service." Dr. Witts will also act as visiting chief at the Atlantic City Hospital May 2-7.

NEW YORK

Edward J. Meyer Laboratory.—Mrs. S. Margaret Meyer has bequeathed $432,454.57 to construct, equip and maintain a research laboratory at the University of Buffalo Medical School. The institution will be known as the Edward J. Meyer Laboratory in memory of her husband, a Buffalo physician. Dr. Meyer died in September 1935.

Postgraduate Lectures.—The state medical society in cooperation with the state health department has arranged a series of lectures for the Saratoga County Medical Society to be given at the Saratoga Hospital, Saratoga Springs, at 3 p. m.

March 30, Nathan Sobel, New York, Diagnosis and Treatment of Common Skin Diseases.
April 6, Leon G. Berman, New York, Diagnosis and Treatment of the Acute Abdomen.

The Cayuga County Medical Society meeting at 8 p. m. at the Springside Inn, Auburn, will hear Dr. Ferdinand J. Schoeneck, Syracuse, speak on sterility.

New York City

A Death from Chickenpox.—There were 2,060 cases of chickenpox reported to the New York City Department of Health in February and 1,389 cases reported in January, the largest number of cases since April 1947. One death from chickenpox was also reported in January but none in February.

Course in Surgical Anatomy.—A course in surgical anatomy will be given at the Cornell University Medical College June 1-30 for five and one-half days a week, designed especially for candidates for the American Board of Surgery. The course will consist of an intensive review of surgical anatomy with demonstrations and dissection. Dr. Ernest W. Lampe will be in charge. Registration is limited to 25, and the fee is $200. Inquiries may be directed to the Office of the Dean, Cornell University Medical College, 1300 York Avenue, New York 21.

Institute of Industrial Medicine Course.—The Institute of Industrial Medicine of the New York University–Bellevue Medical Center on March 3 inaugurated a course in medicine in industry for third year students at the New York University College of Medicine. Extending over a period of 12 weeks, the course will include lectures in dust diseases, lead, solvents, dermatoses, psychiatry in industry, applied physiology of respiration as applied to dust diseases, organization and administration of industrial medical departments, physical factors in the industrial environment, the role of research and physical examinations. Dr. Anthony J. Lanza is chairman of the institute.

Chest Surgery on Lower East Side.—The Lower East Side Planning Council, which includes fourteen settlement houses, churches and other organizations, in cooperation with the City of New York Department of Health is conducting a one month free mass chest roentgenologic survey on the Lower East Side. The campaign opened March 8. Tuberculosis occurs more frequently in the Lower East Side than in most other parts of the city, it is reported. Of all thirty health center districts in New York City, the Lower East Side has the second highest number of tuberculosis deaths as well as the second highest number of newly reported cases of tuberculosis. In about 10 per cent of all new active cases of tuberculosis which have come to the attention of the Health Department during the past year the patients are residents of the Lower East Side Health Center District.

OHIO

Annual State Medical Meeting.—The Ohio State Medical Association will hold its annual session April 19-22 with headquarters at the Neil House, Columbus. Section meetings will be from 9 a. m. to noon. Out of state speakers include:

Charles S. Cameron, New York, Cancer Control.
Joseph W. Gale, Madison, Wis., The Crippled Lung.
Henry S. Ruth, Philadelphia, Anesthesiology as an Aid to Diagnosis and Treatment.
Kenneth E. Appel, Philadelphia, Psychiatric Aspects of Medicine.
Philip M. Stimson, New York, Diagnosis and Treatment of Early Poliomyelitis.
John R. Neefe, Philadelphia, Recent Developments in Viral Hepatitis and Other Liver Diseases.

On Wednesday afternoon five groups will discuss the most recent developments in medicine and surgery. On Friday morning six round table discussions will include problems most frequently encountered by physicians. Both these programs are innovations in the annual session. Eighteen instructional courses following the line of panel discussions, designed to provide practical instruction on handling clinical problems, will be presented during the mornings Tuesday through Thursday. Attendance will be limited and admission will be by ticket only. Thursday evening's program will be devoted to a question and answer session on the procedures of the state's Industrial Commission, Department of Public Welfare and Department of Health.

The annual banquet will be held Wednesday at 7:30 p. m. The Woman's Auxiliary will meet at the Seneca Hotel April 19-21. Special societies holding meetings include the Ohio State Radiological Society and the Ohio chapters of the American College of Chest Physicians and the Academy of General Practice.

PENNSYLVANIA

Report of State Cancer Coordinating Committee.—The Pennsylvania State Cancer Coordinating Committee, made up of representatives of leading cancer fighting agencies in the state, has released its first report which indicates the wide scope of the cancer program in Pennsylvania. Organizations included in the committee are the Commission on Cancer of the Medical Society of the State of Pennsylvania, the Division of Cancer Control of the State Department of Health and the Pennsylvania and Philadelphia divisions of the American Cancer Society. The primary function of the committee is to prevent overlapping of programs through planned allocation of the functions or primary objectives of each agency. The problems with which the committee is concerned include lay and professional education, diagnosis and treatment of cancer, statistical and research organizations, organization and campaigns for funds. Specific phases of each of these problems have been assigned to participating agencies, and a substantial measure of cooperation on the part of each is reported. Members of the committee are Drs. John V. Blady, Philadelphia, and Horace B. Anderson, Johnstown, for the state medical society; Ross M. Vickers, Williamsport, and Dr. Harold J. Harris, Wilkes-Barre, for the Pennsylvania Division of the American Cancer Society, and Dr. Catharine Macfarlane, and E. C. Nicodemus for the Philadelphia Division of the American Cancer Society. Dr. Leverett D. Bristol, chief of the Division of Cancer Control of the Pennsylvania Division of Public Health, is chairman.

Philadelphia

Lecture on Cancer Chemotherapy.—Morris Belkin, Ph.D., National Cancer Institute, Bethesda, Md., will speak on "Current Experimental and Clinical Cancer Chemotherapy" April 8 at 8 p. m. in the Assembly Hall of Jefferson Medical College of Philadelphia. This is the annual lecture of the college chapter of Phi Lambda Kappa. All are invited to attend.

Appoint Director of Johnson Foundation.—Britton Chance, Ph.D., has been appointed director of the Eldridge Reeves Johnson Foundation for Medical Physics of the University of Pennsylvania School of Medicine. Dr. Chance, who before his appointment was associate professor of biophysics in the university's medical school, succeeds Dr. Detlev W. Bronk, who in January became president of Johns Hopkins University, Baltimore. Dr. Chance served as acting director for a time in 1940 and 1941. He has been a research student at Trinity College, University of Cambridge Faculty of Medicine, England. During the war he served as a staff member of the Massachusetts Institute of Technology's radiation laboratory. At the close of the war he worked and studied at the Nobel Institute in Stockholm on a Guggenheim fellowship. He is a graduate of the University of Pennsylvania and received a degree of Master of Science from there in 1936 and his Ph.D. degree in 1940.

WEST VIRGINIA

Personal.—The following members of the West Virginia State Medical Association were recently elected to honorary lifetime membership. Drs. Carson A. Willis, Clarksburg; Thomas W. Moore, Huntington; W. Byrd Hunter, Huntington; Horace S. Falconer, Fairmont, and Patrick L. Gordon, Charleston.

Atmospheric Pollution in Charleston Area.—A study of soot fall in the metropolitan area of Charleston has been made by the Bureau of Industrial Hygiene of the West Virginia Department of Health. Over a period of two and one-half years samples were collected and measured at twelve stations in 1946 and at six stations in 1947. The study shows that the problem is of sufficient magnitude to warrant serious consideration of plans for an over-all atmospheric pollution control program.

WASHINGTON

New Director of Health.—Dr. John A. Kahl, Seattle, has been appointed acting director of the Washington State Department of Health succeeding Dr. Arthur L. Ringle, who resigned December 3. Dr. Kahl is a graduate of University of Nebraska College of Medicine, Omaha, and has served intermittently as assistant director for several years.

Results of Immunization Program.—The value of immunization programs carried out by private physicians and local health departments of the state was again shown in the year 1948 by declines in smallpox, diphtheria and whooping cough. Since the vaccination of hundreds of thousands of Washingtonians in 1946, smallpox has not been reported in the state, where previously the average was 12 cases yearly for five years. Diphtheria dropped from 186 cases in 1947 to 88 in 1948 and whooping cough dropped from 1,480 in 1947 to 988 in 1948. Typhoid incidence was reduced to 12 cases, the lowest in the state's history. Pasteurization of milk and the fight against Bang's disease in cattle lowered undulant fever cases from 65 in 1947 to 43 in 1948. Diseases for which there is no immunization showed no such declines. Poliomyelitis cases in 1948 were 378 with 168 in 1947; the ten year average is 218 cases. Measles gained 10 times, with 1,249 cases in 1947 and 12,748 in 1948. Mumps cases were 12,164 in 1948, 3,633 in 1947; scarlet fever cases 1,811 in 1948 and 1,450 in 1947.

PUERTO RICO

Survey to Establish Medical School.—A preliminary study on the establishment of a school of medicine in Puerto Rico was conducted in San Juan by Dr. Robert A. Lambert, first medical director of the Puerto Rico School of Tropical Medicine, and government officials. Dr. Lambert conferred with Dr. Juan A. Pons, commissioner of education, Dr. Pablo Morales Otero, present director of the School of Tropical Medicine, Dr. Jose N. Gandara, member of the Superior Council of Education, and Drs. Ramon M. Suarez and Manuel de la Pila Iglesias, the last two members of the commission, who in 1944 made the first survey on the establishment of a school of medicine, under the auspices of the University of Puerto Rico. Drs. Rufus C. Harris, president of Tulane University, and Maxwell E. Lapman, director of the Tulane School of Medicine, were invited to cooperate in the survey now being conducted. The possibilities that a final report will be rendered on this project are more favorable than two years ago. Members of the majority party controlling the legislative branch of the government have

expressed their desire to approve the measures necessary to carry on this project. For the establishment of this school of medicine a law appropriating $300,000 was approved by the governor in 1948.

GENERAL

Health Association Meeting.—The Southern Branch of the American Public Health Association will meet at the Baker Hotel, Dallas, Texas, April 14-16 under the presidency of Dr. John M. Whitney, New Orleans. Section meetings will be held on Friday afternoon. Among the speakers at the general session is Dr. Rolla E. Dyer, Bethesda, Md.

Results of Study of Child Health Services.—The American Academy of Pediatrics will announce the findings and recommendations resulting from a three year nationwide Study of Child Health Services at a dinner April 2 at the Roosevelt Hotel, New York. The speakers will be Drs. Warren R. Sisson, Boston, president of the academy; Thomas Parran, Pittsburgh; Roscoe L. Sensenich, President, American Medical Association, South Bend, Ind., and Mr. Winthrop Rockefeller, New York.

Conference on Coordinating Congresses of Medical Sciences.—A general constituent assembly to found a permanent Council for the Coordination of International Congresses of Medical Sciences will be held in Brussels, Belgium April 4-9. The conference is being sponsored jointly by the United Nations Educational, Scientific and Cultural Organizations and the World Health Organization. More than fifty representatives from international medical organizations and associations will attend.

Thoracic Surgery Meeting.—The American Association for Thoracic Surgery will hold its annual meeting March 29-31 at the Hotel Roosevelt, New Orleans, under the presidency of Dr. Edward D. Churchill, Boston. Among those invited to present papers are:

Henry K. Beecher, Boston, Anesthesia for Thoracic Surgery, a Study of the Effect of the Open Pleura on the Blood Gases.
Homer L. Skinner, Staten Island, N. Y., Pneumonectomy Followed by Immediate Thoracoplasty.
Hawley H. Seiler, Oteen, N. C., Pulmonary Resection of Metastatic Malignancy.

Survey of the Nursing Profession.—The first authoritative survey among U. S. nurses since the war, recently conducted by the American Nurses' Association, reveals that there are today 435,000 registered professional nurses in this country, of whom only 280,500 or 64.5 per cent, are active. Of these, the largest concentration is in the Middle Atlantic states. The survey shows that the number of professional nurses in hospitals and schools of nursing increased 13.4 per cent from 1946-1947; in addition, the number of public health nurses and the number of professional nurses employed by government agencies rose in 1948. Enrolment of student nurses Jan. 1, 1948 totaled 91,643, a drop of about 14 per cent from the 106,900 students enrolled Jan. 1, 1947.

Industrial Medicine Conference.—The spring meeting of the New England Conference of Industrial Physicians and Surgeons will be held April 27 at Yale University School of Medicine, New Haven, under the sponsorship of the Connecticut State Medical Society, State Department of Health and the university. Members of the state medical society and friends are invited to attend. Papers will be presented on "Cardiac and Vascular Diseases, Their Industrial Significance." Out of state speakers will be Dr. Arthur M. Master, New York, on "Coronary Artery Disease, Pathogenesis with Consideration of Relationship of Effort to Myocardial Infarction," and Dr. Hugh Montgomery, Philadelphia, "Obliterative Disease of the Arteries." The subject of the dinner address at 7 p. m. is "Education in Industrial Health and Public Health." The registration fee is $3.

Residencies in Industrial Medicine.—General Motors Corporation announces an expansion of its In-Plant Training Program for physicians wishing practical experience in industrial medicine and is prepared to accept ten residents for the year beginning July 1949. Each appointee will receive orientation instruction in General Motors Medical Procedure and Industrial Hygiene Control, followed by assignment to a General Motors plant for a year's resident training. Each plant medical department will be affiliated with a hospital approved for intern and resident training by the Council on Medical Education of the American Medical Association. Each candidate must be a graduate of a Class A medical school, have completed at least a twelve months' rotating internship or its equivalent in hospital training, and have an interest in occupational health. He must also be licensed to practice medicine in the state to which he is assigned. Letters of application should be addressed to the Medical Consultant, General Motors Corporation, 3044 West Grand Boulevard, Detroit 2.

Allergists Annual Meeting.—The annual meeting of the American College of Allergists will be held in Chicago at the Palmer House April 14-17, under the presidency of Dr. George E. Rockwell, Milford, Ohio. Among those invited to present papers are:

Paul Holinger, Chicago, Bronchoscopy.
Abel Froman, Chicago, Fungus Diseases of the Lungs and Bronchi.
Jerome R. Head, Chicago, Late Non-Tuberculous Complications of Calcified Hylus Lymph Glands.
Emmet F. Pearson, Springfield, Ill., Studies of Chronic Bronchitis.
Samuel J. Prigal and Moses L. Furman, New York, Use of Bacitracin in Aerosol Form.
Karl D. Figley, Toledo, Ohio, Use of Concentrated Extract in the Treatment of Mold-Sensitive Patients.
Edwin R. Levine, Chicago, Effect of Bronchial Spasm on Pulmonary Function.
Harry S. Bernton, Washington, D. C., and Mary Loveless, New York, Cottonseed Protein vs. Cottonseed Oil Sensitivity.
Carl R. Rogers, Ph.D., Chicago, A Philosophy of Professional Relationships with Individuals.
Walter F. Rongaus, Donora, Pa., The Donora Catastrophe.
Tzvee N. Harris, Philadelphia, Antibody Formation in Young Animals.
Benjamin F. Feingold, Los Angeles, Infection in the Allergic Child.
James C. Overall, Nashville, Tenn., Drug Therapy in Hay Fever and Asthma in Children.
W. Ambrose McGee, Richmond, Va., Gastro-Intestinal Allergy in Children.

The informal banquet will be held Saturday evening at 7:30.

Community Health Institute.—The Chamber of Commerce of the United States will present a National Institute on Community Health April 7 at the Netherlands-Plaza Hotel in Cincinnati beginning at 9:30 a. m. "Has Your Community Kept Pace with the Nation's Health Progress?" will be the question under discussion with A. D. Marshall, assistant secretary, General Electric Company, as moderator. Among the speakers will be:

Mr. Earl O. Shreve, Washington, D. C., president, Chamber of Commerce, Opening Remarks.
Dr. George M. Wheatley, New York, Contribution of Governmental Public Health Services.
Dr. James R. Miller, Hartford, Conn., Contribution of the Medical Profession.
Mr. Albert V. Whitehall, Washington, D. C., Contribution of Hospitals.
Mr. O. C. Hubert, Atlanta, Ga., What Atlanta Has Done.
Mr. Herbert Garster, Farrell, Pa., What Farrell Has Done.
Mr. Robert A. Hornby, San Francisco, A Businessman's Appraisal of the Past, Present and Future.

Discussion periods will follow the morning and afternoon programs. At the luncheon Mr. Shreve will speak on "The Employer and His Workers' Health." Believing that more effective community health work is highly desirable, the Chamber of Commerce has planned the institute to stimulate the interest of businessmen and business organizations in their community health problems and to foster intelligent action.

CORRECTION

Systemic Administration of Bacitracin in Surgical Infections.—The first word in the fifth line of the abstract with this title appearing in THE JOURNAL, March 12, page 739, should be "systemic" instead of "systematic." The second word in the second line in the right hand column of this same abstract should read "without" instead of "with."

Marriages

CLAUDE LOWRY PRESSLY, Statesville, N. C., to Miss Margaret Amelie Mechlin of Washington, D. C., February 5.

HERBERT CLIFTON ALLEN Jr., Richmond, Va., to Mrs. Elisabeth Hunt Wheeler of Bedford, Pa., February 1.

SERUCH T. KIMBLE JR., Washington, D. C., to Miss Helen Louise Matchett of Encino, Calif., January 15.

RICHARD ALBERT MARTORELL, to Miss Rhoda F. Knight, both of Tampa, Fla., in Cairo, Ga., February 5.

JOHN HENRY HOLDEN, Staten Island, N. Y., to Miss Janet Scott Jacobs at Portland, Me., January 15.

LEO JOHN HERBERT, Syracuse, N. Y., to Miss Elizabeth Sweeney of New York, January 29.

ROBERT STANTON SHERMAN Jr., to Dr. Mary Jane Jensen, both of San Francisco, January 27.

SIDNEY ELIAN WANDERMAN, New York, to Miss Jeannette Boskoff of Brooklyn, February 14.

H. KELVIN MAGILL, Raton, N. M., to Miss Geraldine Sweet of Boston, January 24.

H. EARLE CONWELL to Mrs. Mary Lou Hill, both of Birmingham, Ala., January 16.

Deaths

Noble Alvin Upchurch, Jacksonville, Fla.; born in Callahan, Fla., May 31, 1877; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; member of the American Medical Association; past president of the Duval County Medical Society; served the American Public Health Association for many years in various offices and was made a fellow of that organization in 1930 in recognition of his outstanding contributions in field of public health; later recognized by the Cuban government when he was chosen the recipient of the Finlay Award and cited for this achievements; past president of the Florida Public Health Association; for eighteen years, from Jan. 18, 1925 to Dec. 31, 1942, health officer of the city of Jacksonville; retired Jan. 1, 1943 because of ill health; member of the staffs of St. Luke's and St. Vincent's hospitals; served as physician to the athletic department of the old Duval High School; medical examiner for many life insurance companies; died December 31, aged 72.

Robert Koritschoner ✙ Kansas City, Mo., born in Vienna, Austria, May 9, 1884; Medizinische Fakultät der Universität, Wien, Germany, 1910; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists, College of American Pathologists and the American Society of Clinical Pathologists; director of pathology at the University of Kansas City School of Dentistry; affiliated with the Douglass Hospital, Kansas City, Kan., Wheatley-Provident Hospital and the Menorah Hospital, where he died November 15, aged 64, of carcinoma of the pancreas.

Arthur Thomas Davis, Riverhead, N. Y.; born in Utica, N. Y., Dec. 11, 1882; Albany Medical College, 1904; member of the American Medical Association; for many years commissioner of health of Suffolk County; formerly commissioner of health for Delaware; served during World War I; formerly associated with the U. S. Public Health Service; consulting epidemiologist for the Mather Memorial Hospital in Port Jefferson; epidemiologist for the Southside Hospital in Bayshore; consulting physician to the Southampton (N. Y.) Hospital; died December 17, aged 66, of chronic nephritis with uremia.

Julian Baker Blue ✙ Memphis, Tenn.; born in 1884; University of Louisville (Ky.) Medical Department, 1907; specialist certified by the American Board of Ophthalmology and of the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past president of the Shelby County Medical Society; for many years on the faculty of the University of Tennessee College of Medicine; on the staff of the Methodist Hospital, where he died January 25, aged 64.

William Lemuel Alcorn ✙ Washington, Iowa; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1904; past president of the Washington County Medical Society; director of the Washington State Bank; died November 20, aged 68.

Frank Wesley Allin ✙ Chicago; Rush Medical College, Chicago, 1905; assistant professor of pediatrics (Rush) emeritus, University of Illinois College of Medicine; on the examining board during World War I; served on the staffs of the Garfield Park Community Hospital and the Presbyterian Hospital, where he died December 28, aged 79, of coronary thrombosis.

Joseph S. Ayers, Newark, N. J.; New York Homeopathic Medical College, 1883; died November 15, aged 88, of coronary thrombosis.

De Witt Baer, Steele, N. D.; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Medical Association; died November 20, aged 63, of hypertension.

Andrew E. Bell, Mooresville, N. C.; University of Maryland School of Medicine, Baltimore, 1897; member of the American Medical Association; formerly member and chairman of the school board; affiliated with the Lowrance Hospital; vice president of the First National Bank; died November 24, aged 81, of pyelonephrosis.

Linford Shepherd Besson ✙ Portland, Ore.; Hahnemann Medical College and Hospital of Philadelphia, 1915; for many years member of the Oregon Board of Medical Examiners, of which he had been a secretary treasurer; served overseas during World War I; affiliated with the Physicians and Surgeons Hospital, where he died December 1, aged 60, of coronary occlusion.

Joseph Henry Blomer, Quincy, Ill.; Rush Medical College, Chicago, 1906; member of the American Medical Association; on the staff of St. Mary's Hospital, where he died December 2, aged 68, of carcinoma of the left lung.

William Ballantine Boyd, East Windham, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1905; for many years on the staff of the Presbyterian Hospital in New York; died in Intercession City, Fla., December 1, aged 71, of cardiac failure and bronchial asthma.

Elmer E. Clark, Oakley, Ill.; Barnes Medical College, St. Louis, 1898; died December 8, aged 78, of injuries received when his automobile was struck by a train.

Edward Clifton Clayton ✙ Leeds, Ala.; Birmingham Medical College, 1909; died in South Highland Infirmary, Birmingham, November 24, aged 63, of complications following a ruptured appendix.

Robert James Curdy ✙ Kansas City, Mo.; Washington University School of Medicine, St. Louis, 1895; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the American Ophthalmological Society; fellow of the American College of Surgeons; on the staffs of St. Margaret's Hospital, Kansas City, Kan., and St. Mary's, St. Luke's, Kansas City Municipal and Children's Mercy hospitals; died December 15, aged 80.

Charles Davis, New Holland, Ohio; Eclectic Medical College, Cincinnati, 1892; died in the Grant Hospital, Columbus, November 14, aged 81.

Augusto de Mier Alonso, Lafayette, La.; Louisiana State University School of Medicine, New Orleans, 1942; died November 27, aged 31, as the result of an automobile accident.

William Joseph Doyle, St. Louis; Beaumont Hospital Medical College, St. Louis, 1901, and Washington University School of Medicine, St. Louis, 1903; member of the American Medical Association; fellow of the American College of Surgeons; for many years affiliated with the City hospital; died in St. Vincent's Hospital November 22, aged 75, of carcinoma of the lung.

George Adam Drescher ✙ Lewiston, Mich.; Detroit College of Medicine, 1915; examining physician for local draft board during World War II; formerly practiced in Detroit, where he was affiliated with Harper and Deaconess hospitals; died December 16, aged 61, of cerebral hemorrhage and diabetes insipidus.

Sidney Weiss Durschlag ✙ Cleveland; Ohio State University College of Medicine, Columbus, 1931; specialist certified by the American Board of Otolaryngology; flight surgeon and captain in the medical corps of the Army of the United States during World War II; served as an examiner for the Veterans Administration; affiliated with the Polyclinic Hospital and the Mount Sinai Hospital, where he died December 16, aged 42, of cancer of lung.

Jerome Perley Fickett ✙ Portland, Me.; Medical School of Maine, Portland, 1898; formerly member of the state legislature; served as health officer of Naples; died recently, aged 73, of carcinoma.

Edward J. Fleetwood, Lincoln, Neb.; University of Nebraska College of Medicine, Omaha, 1902; died in Pomona, Calif., recently, aged 76, of arteriosclerosis and hypertension.

Rhoda Galloway-Yolton, Bloomington, Ill.; Woman's Medical College, Chicago, 1887; died in the Brokaw Hospital, Normal, December 23, aged 86, of myocarditis and arteriosclerosis.

William John Gatti, Philadelphia; College of Physicians and Surgeons, Baltimore, 1914; died in the Mercy Hospital recently, aged 56, of bronchopneumonia and arteriosclerotic heart disease.

William Armistead Gills ✙ Passed Assistant Surgeon, Lieutenant, U. S. Navy, retired, Norfolk, Va.; Medical College of Virginia, Richmond, 1900; entered the navy on Dec. 22, 1920 and retired on Dec. 15, 1923 for incapacity resulting from an incident of service; served during World War I; died November 23, aged 72, of coronary occlusion.

Frederick S. Greenbaum, Los Angeles; Rush Medical College, Chicago, 1902; died November 25, aged 70.

Charles Avery Hansen, Mount Vernon, Wash.; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1906; at one time a missionary; died December 13, aged 76.

Edgar E. Hart, Oklahoma City; St. Louis College of Physicians and Surgeons, 1896; formerly associated with the Indian Service; died in Wesley Hospital recently aged 80, of tumor of the prostate and paralysis.

Paul Headland, Galesburg, Ill.; Loyola University School of Medicine, Chicago, 1919; member of the American Medical Association; served during World War II; in charge of the student health service at Knox College; died January 7, aged 60, of acute coronary occlusion.

Virginia Borum Pope Hickerson, Cincinnati; University of Virginia Department of Medicine, Charlottesville, 1926; certified by the National Board of Medical Examiners; formerly member of the staff of the Mississippi State Tuberculosis Sanatorium in Sanatorium, Miss.; resident physician at Dunham Hospital, where she died December 25, aged 57, of cerebral hemorrhage.

Milton M. Kay, Encinitas, Calif.; Northwestern University Medical School, Chicago, 1905; member of the American Medical Association; died in Paradise Valley Sanitarium and Hospital in National City, November 16, aged 76, of sprue.

Jay S. Liebman, Alexandria, Va.; Atlanta College of Physicians and Surgeons, 1910; died in Martinsburg, W. Va., November 20, aged 64.

Raffaele Lorini, Beaumont, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; member of the American Medical Association; formerly health officer of Coronado; died November 7, aged 89.

George Malcolm MacGregor, Kent, Wash.; Johns Hopkins University School of Medicine, Baltimore, 1902; member of the American Medical Association; formerly health officer; served on the staff of the Auburn (Wash.) General Hospital; died in Steilacoom November 11, aged 77, of arteriosclerotic heart disease.

Robert F. McLean, Gibbon, Neb.; Western University Faculty of Medicine, London, Ontario, Canada, 1906; served on the staff of the Good Samaritan Hospital in Kearney, died November 25, aged 65, of lung tumor.

Frank Rouse Morley, Sedalia, Mo.; University Medical College of Kansas City, 1901; member of the American Medical Association; died November 25, aged 70, of coronary thrombosis.

Joseph Sweetman Parent ✠ Galway, N. Y.; Albany (N. Y.) Medical College, 1886; served as health officer in the town and village of Galway; died December 7, aged 87.

Napoleon B. Rundall, Petaluma, Calif. (licensed in California in 1918); for many years city health officer; died December 16, aged 66.

Jibran Yusuf Skeirik ✠ Lawrence, Mass.; Harvard Medical School, Boston, 1929; certified by the National Board of Medical Examiners; member of the New England Obstetrical and Gynecological Society; died in the Beth Israel Hospital, Boston, December 5, aged 55.

Colbert Cecil Stepp, Hatfield, Ky.; Kentucky University Medical Department, Louisville, 1906; died in Williamson, W. Va., December 18, aged 76.

James Lona Salmon Stewart ✠ Boise, Idaho; Rush Medical College, Chicago, 1899; member of the founders group of the American Board of Surgery; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; served during World War I; affiliated with St. Alphonsus and St. Luke's hospitals; died December 15, aged 73.

Edward Charles Straessley ✠ Beaver Falls, Pa.; University of Maryland School of Medicine, Baltimore, 1912; died in the Providence Hospital December 7, aged 59, of coronary artery disease.

James D. Stuart, Crystal, Mich.; Baltimore University School of Medicine, 1899; for many years coroner of Genesee County; died December 8, aged 74.

Walter Thomas Swink, Memphis, Tenn.; College of Physicians and Surgeons of Chicago, 1896; Vanderbilt University School of Medicine, Nashville, 1900; formerly associate professor of medicine at the University of Tennessee College of Medicine; member of the American Medical Association; served during World War I; affiliated with John Gaston Hospital; died December 20, aged 78, of pneumonia.

Andrew John Taddeo, New York; University and Bellevue Hospital Medical College, New York, 1929; served during World War II; on the staff of the Morrisania Hospital; died December 24, aged 49.

Ernest Taylor Tappey, Grosse Pointe Farms, Mich.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1879; formerly on the faculty of Wayne University College of Medicine; died December 22, aged 95, of left lobar pneumonia.

Frank Donaldson Thomas ✠ St. Petersburg, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; served during World War I; formerly on the staffs of the Nesbit Memorial Hospital in Kingston, Pa., and the Homeopathic Hospital in Wilkes-Barre, Pa.; affiliated with the Veterans Administration; died January 8, aged 59.

Frank Mathias Tombaugh ✠ Burlington, Iowa; Northwestern University Medical School, Chicago, 1896; past president of the Iowa State Surgical Society and the Des Moines County Medical Society; fellow of the American College of Surgeons; medical examiner for local draft boards during World Wars I and II; affiliated with the Mercy Hospital; died December 29, aged 79, of cerebral hemorrhage.

Aaron Samuel Torrens ✠ Hanford, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; formerly city and county health officer; medical examiner for the draft board during World Wars I and II; died January 2, aged 69, of myocardial failure.

Victor Floyd Tremor, Indianapolis; Indiana University School of Medicine, Indianapolis, 1923; member of the American Medical Association; served during World Wars I and II; formerly affiliated with the Veterans Administration Hospital, where he died December 31, aged 53, of myocardial infarction.

Granville B. Trout, Zanesville, Ohio; Starling Medical College, Columbus, 1892; past president of the Muskingum County Academy of Medicine; formerly county coroner; affiliated with the Bethesda Hospital; medical examiner for the Metropolitan Life Insurance Company; died in the Good Samaritan Hospital, December 15, aged 87, of complications as the result of a fractured hip received in a fall.

Benjamin Randall Tupper, Schenectady, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1888; affiliated with the New York Post Graduate Hospital in New York; died in the Ellis Hospital December 8, aged 86, of coronary occlusion.

George Hampden Upton, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1907; member of the American Medical Association; affiliated with Mercy Hospital; died January 29, aged 66, of thrombosis.

Samuel Burns Van Dalsem, San Jose, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Medical Association; served during World War I; died January 18, aged 73, of carcinoma.

James Murray Washburn, Lake Lure, N. C.; Northwestern University Medical School, Chicago, 1899; fellow of the American College of Physicians; formerly practiced in Chicago, where he was associate professor of medicine, emeritus, at his alma mater and on the staff of Passavant Memorial Hospital; at one time associated with the U. S. Public Health Service; mayor for many years; died January 16, aged 75, of carcinoma.

Cyril Aloysius Whalen ✠ Mahanoy City, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1934; past president of the board of education; died in the Locust Mountain Hospital, Shenandoah, January 25, aged 40, of Hodgkin's disease.

Leander C. White ✠ Adair, Okla.; Kentucky University Medical Department, Louisville, 1905; past president and secretary of the Mayes County Medical Society; local surgeon for the Missouri, Kansas and Texas Railroad; examiner for Mayes County Selective Service during World Wars I and II; elected first coroner of the Mayes County in 1907; served on the school board; died December 4, aged 75, of heart disease.

John Wyman Whiteside, Chicago; Rush Medical College, Chicago, 1884; died January 16, aged 91, of myocarditis.

Clayton Lester Wood, Washington, D. C.; Medical College of Virginia, Richmond, 1918; served during World War I; medical director of the Disabled American Veterans; for many years affiliated with the Veterans Administration; died January 3, aged 60.

Swan G. Wright, Minneapolis; Minneapolis College of Physicians and Surgeons, 1908; member of the American Medical Association; served on the staff of the Swedish Hospital, where he died December 13, aged 69, of heart disease.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 5, 1949.

The National Association for the Prevention of Tuberculosis

The National Association for the Prevention of Tuberculosis has celebrated its jubilee. Its recommendations for the education of the public, the purity of our milk supply and the erection of sanatoriums gradually became parts of a national scheme of tuberculosis control, and great saving of life and prevention of the disease followed. In 1898, with a population of 36,000,000, there were 70,000 deaths from tuberculosis in England and Scotland. In 1948, with a population of 48,000,000, the deaths are expected to be under 27,000. The association has played an important part in the campaign for mass radiography. In the last few years increased attention has been given to the problem of tuberculosis in the British Empire, particularly in the smaller colonies, where it is a serious menace, and with the disease within measurable distance of control at home this may well be the field of future work. The association has already carried out research surveys in the West Indies, the Gold Coast and elsewhere. It also offers colonial scholarships for study in this country. The six scholars for 1948 came from East Africa, the Gold Coast, Malta, Singapore, the Sudan and Trinidad.

Extended Safeguards for Workmen

An employers' liability bill entitled Safety of Employment has been introduced in the House of Commons. It greatly extends the liability of employers. It proposes to protect all who work under a contract of employment and brings within its scope such employees as agricultural workers, local government employees, domestic servants and merchant seamen. At present an injured workman can claim benefit under the National Insurance (Industrial Injuries) Act, and in some cases he can in addition claim damages at common law, if he can prove that the employer was negligent. The object of the bill is to improve working conditions and to minimize claims for damages by establishing a minimum standard of safety. It obliges the employer to take all practicable steps to prevent injury at work, including injury to health, and lays down that it shall not be taken as fulfilment of his obligation for him to have followed customary practices. Further provisions empower the Minister of Labor to prescribe minimum standards of safety in a particular occupation. The bill is in line with much recent legislation, which has aimed at serving the interests of the workman in every possible way.

Medical Students to Act as Nurses

An important innovation in the training of students has taken place at the London Hospital. They are to be trained in nursing, which means tidying beds, washing patients and making tea in male wards. Dr. Clark-Kennedy, dean of the hospital, thus explains the innovation in the *Daily Mail:* "When a medical student becomes a doctor it is part of his duty to supervise nursing. He must teach mothers, daughters, sisters and wives how to nurse patients at home. How can a student know if nursing is being well done if he has not had some training himself?" The students will be still under the control of the dean and not under that of the matron, but the dean has delegated his authority to the ward sisters, who will direct the students' activities and teach them the principles of good nursing.

AUSTRALIA

(From Our Regular Correspondent)

March 1, 1949.

Deadlock on National Medical Service

The Government is proposing desperate measures to overcome the resistance of the British Medical Association to so-called free medicine and the National Health Service plan.

The Government proposes to launch an intensive publicity campaign advising people to pay only half any account from their doctor; it will protect a patient against legal action for recovery of the other half, and will advise doctors that they can collect it by applying to the Government under the Medical Benefits Act.

This would not be a breach of the Constitution forbidding civil conscription of doctors or of the promise that no compulsion would be used to get doctors into either the free medicine or national health scheme, considers the Government.

The Government may issue new regulations involving prosecutions and heavy penalties for doctors writing prescriptions which appear in the free medicine formulary without using the official free medicine form.

The Minister for Health, Senator McKenna, was advised that doctors had used the same prescription as that in the Government formulary, but had added a different flavoring to avoid exact conformity. This is difficult to understand, because nearly all doctors refused to accept the formularly and forms when delivery was attempted.

The attitude of the British Medical Association is that they have never opposed the Government policy to give the people "free" medicine and "half-free" medical treatment.

The British Medical Association is anxious to offer full cooperation in such services, provided only that there shall not be interference with the liberty of doctor or patient, or with the intimate and confidential relationship between them.

The Government ignored the objections of the British Medical Association. Thus in relation to "free" medicine, only those medicines in a Government list are "free" and then only if the doctor writes his prescription on a Government form, the use of which automatically places him under the control of regulations and within the scope of penalties, both of which can be varied at the behest of the Government or the Minister.

Again, in the National Health Service Act, the Government aims to compile a schedule of the fees payable for attendance by general practitioners in accordance with which the patient will pay half and the Government half, but only if the doctor agrees to be bound by changeable regulations which require disclosure of details of the patient's illness, which are able to limit the type of practice he may undertake and which alter the amount and manner of payment for his services as the Government wills.

To such conditions the profession can never submit, nor will the Government countenance their removal. "Who then is denying the people these great social benefits?" asks the British Medical Association. Doctors cannot give them without the sacrifice of their freedom, but the Government can, at the expense only of the sacrifice of their lust for power. Let the Government decree that all medicines, or certain expensive single drugs, prescribed on a doctor's private form, shall be free; let it determine also that it will refund to the patient half his medical fees on production of a receipt.

The reported proposal of the Government to exercise coercion by prosecution and fines on doctors whose offense stemmed only from the value they placed on their freedom deserved only contempt.

The profession will rely not only on learned legal opinion that the Government possesses no legal or constitutional power to effect this iniquity, but also on the will of the great Australian nation to see justice and fair play.

The British Medical Association is holding fast to a fundamental ethical principle of the medical profession—that a doctor's first duty is to his patient and that duty cannot be subordinated to any Government direction. Threats of fines and other forms of intimidation certainly will not win the cooperation of the medical profession.

When the Federal Government obtained from the people of Australia by referendum in 1946 constitutional authority to legislate for national medical and dental services, the new Commonwealth power was limited by a proviso excluding any form of civil conscription. Should the Chifley Government deliberately provoke a legal contest with the medical profession over this constitutional safeguard, there can be no beginning of any sort of national health service until it is settled. There is also the much bigger political question, whether the national health service projected by the Government will, under Australian conditions and under a socialist administration, give the people real benefits commensurate with what they will have to pay for it.

Nothing offered by the Government, neither "free" medicine nor part payment of doctors bills, is really going to be a gift to any one. It will have to be paid for by heavy taxation. The British scheme is already costing 52,000,000 pounds a year more than was estimated, and the New Zealand Government has had to review the cost of its scheme.

On Dec. 22, 1948, the Government, through Senator McKenna, advised the British Medical Association that every endeavor had been made by the Government to secure the cooperation of the association, which was grievously lacking in a sense of social responsibility. The Government does not intend that its proposals should be further delayed or frustrated by the British Medical Association. The Government has decided that, within the limits of its constitutional power, it will proceed to put its plans into operation. One of the most valuable assets of the British Medical Association is the support of the Australian public and press. There has been surprisingly little public demand for the "benefits" of "free" medicine. Even in poorer and industrial areas where they expected patients might exert some pressure, the people are apathetic.

Although there have been some break-aways throughout the campaign, most druggists have supported the scheme because the Government endorsed certain principles laid down by the Federated Pharmaceutical Guild. Druggists claim that they have entered into a purely business contract with the Federal Government, and were not prepared to take sides into a dispute between the British Medical Association and the Government.

In practically every doctor's rooms is a disapproval notice setting out the reasons for nonparticipation in the scheme. Scarcely any of them have the prescription forms in their possession.

Politicians in Canberra are becoming increasingly worried about the public reaction to the recent Government attempts to force doctors to participate in their plans. The effect of this public feeling may be noticed in the national elections in May. The British Medical Association may go to the High Court to test the validity of the Pharmaceutical Benefits Act and the National Health Services Act. The Government has already on its hands a long legal battle over the nationalization of banks, and it would not be disposed to engage in another.

The federal council of the British Medical Association will hold a four day meeting in Melbourne from March 1. Counter measures to combat the Government's latest offensive will be discussed.

Vital Statistics, 1947

One of the lowest infant mortality rates in the world and an increased birth rate are features of the vital statistics for Australia for 1947.

The infant mortality rate is 28.52 per thousand live births. This can be compared with 41 for Britain, 45 for Canada, 35 for South Africa, 32 for the United States and 25 for New Zealand (excluding the Maori population).

The birth rate for 1947 was 24.1 per thousand population, an increase of 0.5 per thousand over the previous year. In Britain it was 20.7, Canada 28.6, New Zealand 26.4, South Africa 27.2 and United States 25.9.

The death rate was 14.4 per thousand population, an increase of 0.8 per thousand due to a higher rate in the older age groups.

Metric System of Prescribing

Only a small minority of the doctors in Australia write their prescriptions in the metric system. There is no argument against the metric system; every one is agreed, in principle, that it is the right thing to do. But the convenience of the half fluid ounce filling a tablespoon and the traditional background of the British system are rather too strong for the idealism inherent in the metric system.

The newer drugs, especially those in tablet form, are being prescribed in grams, but the "bottle" is 4.6 or 8 ounces, with the prescription written to suit.

As to Latin, it will be generally conceded that English is easier for practical purposes and that few practitioners could write a prescription in grammatical unabbreviated Latin, if they wished. Yet the Latin drug names (with their case endings conveniently chopped off) have become a matter of habit and the abbreviated Latin terms covering standard directions are convenient and probably less ambiguous than abbreviated English would be.

The Australian doctor still likes his quaint symbols and the mysterious phrase which is quite intelligible to those who need to understand it. He still likes his invocation to Jove (or is it Jupiter?). The only occasional tragedy is when a prescription for paraldehyde per rectum is written so badly that the symbol for drachms is mistaken for fluid ounces.

Q Fever Discovery

The report that Q fever had been recognized in Britain adds another country to the number of those in which the disease, originally discovered in Australia, has been found. The United States, Italy, Germany, Switzerland, Morocco, Iraq, Panama and Turkey have already reported the disease among their populations.

Dr. E. A. Derrick, now deputy director of the Queensland Institute of Medical Research in Brisbane, who was the codiscoverer of the Q fever with Professor F. M. Burnet of Melbourne, thought in 1935 that the disease was a purely local curiosity. Some of the general practitioners in Brisbane suburbs having large abattoirs in the district noticed a new type of sickness amongst meat workers. The disease was investigated, and a virus research worker in Melbourne to whom the material from the patients was sent now has the Rickettsia burneti named after him, as it was an infection never previously described. At the same time that it was investigated here the infection was found in Montana (United States) in guinea pigs on which ticks had been fed. But it had not been reported there among human beings.

Q fever is extremely infectious and dangerous to handle in a laboratory. Wherever it is discovered, outbreaks occur among those working on it. In Queensland there have been 3 deaths in the 300 cases reported so far.

The Mental Hospitals in Australia

A steady increase in overcrowding and repeated failure to make any worth while improvement in hospital accommodation are the sorry features of the mental hospitals in Australia.

At some hospitals the nursing and other female staff have been reduced to half. One result of this shortage is that shock therapy has had to be abandoned in some cases because of the demands of routine work on the depleted nursing staff. In some

of the mental hospitals of New South Wales the number of patients sleeping in wards is half as many again as the wards were intended to accommodate.

Many institutions are maintained at their present level only because of the devoted and faithful service of the senior nurses, who are working to the limit of their physical capacity.

ITALY

(From Our Regular Correspondent)

FLORENCE, Feb. 3, 1949.

First Congress on Antibiotics

The Center for Information and Studies on Antibiotics has organized its first national congress, which was held in Milan under the chairmanship of Professor Redaelli. Professor Pratesi, director, Institute for Chemical Pharmaceutics, University of Pavia, reported on "Studies of Antibiotics from the Chemical Point of View." The speaker recalled that many antibiotic substances are well known, and others are waiting to be isolated, exactly identified and utilized. To date about sixty characteristic substances isolated from germs and from fungi present an antibacterial activity, and about thirty of them have been studied from the point of their clinical action. Attempts to classify them encounter difficulties because of the variety of their nature and mode of action. The speaker suggested a scheme of arranging the antibiotics according to their chemical nature in eight groups as follows: (1) quinones of isocyclic series, (2) phenols, (3) derivatives of pyrazine and of phenazine, (4) unsaturated lactones, (5) derivatives of thiazole (penicillin), (6) streptomycin, (7) polypeptides and (8) enzymes.

The speaker discussed particularly the chemical structure of the various substances, exposing the characteristic groups of each of them and discussing all the possible concepts concerning the mode of action of each group. He finally spoke about the chief antibiotics whose structure has not yet been defined, and among them is streptomycin.

The second subject reported on was "Association of Chemotherapy and Antibiotics in Treatment Directed Against Infection." The speakers were Professor Magrassi from the medical clinic of the University of Sassari and Professor Scalfi, assistant at this clinic. The results of research suggest the importance of the possibility of combining two or several antibacterial compounds in order to obtain a greater efficacy against bacteria. It has been demonstrated that sulfathiazole, the pyridine compounds and sulfadiazine may be combined with the antibiotics for an effect on gram-negative bacteria. Combined administration of penicillin and arsphenamine, and of streptomycin with sulfonamide compounds and penicillin, is of the greatest practical interest. But the most noteworthy results of research are those on the association of streptomycin with sulfones in the treatment of experimental tuberculous infection; these results constituted the starting point for a series of clinical applications, which already have yielded promising results.

The speakers discussed the mechanism through which the great efficacy of some of the associations between chemotherapeutic agents and antibiotics may be realized.

The experimental data are favorable to the employment of the combined treatment with chemotherapeutic agents and antibiotics; particularly convincing were the data obtained with the treatment of experimental infections. Therefore clinical control was undertaken. Many observations were collected during the last years. There is not a single field of infectious pathology in which therapeutic trials have not been carried out, but there remain many points which need clarification. However, some general conclusions may be drawn which confirm the progress made by the experimental studies. Clinical observations have made evident that the association of the chemotherapeutic agents and of the antibiotic provides for an increased antibacterial activity in many but not in all of the infections in man. Such an increased therapeutic efficacy is revealed, for instance, by the association of penicillin with the sulfonamide compounds in the treatment of pneumonia and pneumococcic meningitis and by the association of streptomycin, penicillin and sulfonamide compounds in the meningitis caused by hemophils. An even better evaluation of the therapeutic use of the association of chemotherapeutic agents and of antibiotics has been afforded by the results in the treatment of infections in which the isolated administration of the antibacterial drugs failed. This applies to the various types of association of streptomycin, penicillin and sulfonamide compounds in the infections caused by Eberth's bacillus and by Brucella; the association of streptomycin with sulfadiazine determined a decisive progress in the treatment of brucellosis.

Prof. Pietro Fornara, head of the pediatric department of the main hospital of Novara, reported on the third subject, "The Antibiotics in the Treatment of Meningitis in Infants." According to some statistics, in meningococcic meningitis cure was obtained with sulfonamide treatment in 100 per cent of cases, and the sulfonamide compounds still constitute the basic method of treatment. In cases which are resistant to some of the sulfonamide compounds one may vary the sulfonamide compounds (sulfadiazine, not methylated sulfadiazine, is the most active one), and they may be combined occasionally with antibiotics. The results obtained so far with penicillin are not too brilliant.

Pneumococcic meningitis is difficult to cure. Before the sulfonamide era, the mortality rate was 100 per cent; with sulfonamide treatment it was reduced to 65 to 70 per cent. Even with combined chemotherapeutic treatment the mortality rate remains high. Today the treatment of choice for meningitis caused by Hemophilus influenzae is streptomycin combined with sulfonamide compounds, while in some cases it may be supported by Alexander's serum or penicillin. The association of penicillin with sulfonamide compounds or other chemotherapeutic agents has proved useful in meningitis caused by Streptococcus and in that caused by Staphylococcus (a particularly fatal type).

Reports on results obtained in tuberculous meningitis are scarce and doubtful: Nobody has been able to report a definite cure. The employment of streptomycin is still in the experimental stage. It should be used, but five more years must pass before definite results may be pronounced. In addition to dosage, there is the problem of individual resistance and of allergy. Occasionally, streptomycin should be combined with a sulfone or a vitamin, or with morrhuates or other substances. The speaker obtained the best results with combined treatment with streptomycin and vaccine by mouth.

Before the adjournment of the congress, Professor Frankl (Hungary) reported on his research carried out in collaboration with Professor Melczer concerning a method for prolonging and reinforcing the effect of penicillin. The authors used a 10 to 15 per cent aqueous solution of gelatin which may be administered by intramuscular, intravenous or intraspinal route. Using a single dose of 50 to 200,000 units of penicillin contained in the solution just mentioned, the bacteriostatic concentration of the antibiotic in the blood lasted for eight to ten hours; with an intravenous injection its duration varied from six to ten hours. By intraspinal route 10 to 20,000 units of penicillin in 1 cc. of gelatin furnished a bacteriostatic effect for twenty-four to seventy-two hours. A 25 to 30 per cent solution of gelatin may serve as a vehicle for injections into sinuses. The speakers recommended the use of the preparation in all septic conditions.

Correspondence

TUBERCULOSIS IN RECENT IMMIGRANTS

To the Editor:—In Queries and Minor Notes, January 29, Dr. William A. Evans of Detroit states:

"I have seen an impressive number of recent immigrants with far advanced active pulmonary tuberculosis. What is being done at the moment?"

Among some of the statements made answering this query are the following:

"Roentgenograms were made abroad wherever the Public Health Service had medical officers assigned to the consulates and x-ray facilities were available. In the course of medical examinations of visa applicants abroad, those found to have contagious tuberculosis were given class A notifications and visas were refused. . . .

"A provision became effective on Sept. 1, 1948, whereby every applicant for immigration visas will have a roentgen inspection of the chest for tuberculosis and a blood test for syphilis. Those found to have either are rejected. . . . When examinations are conducted at American consulates which lack x-ray and laboratory facilities the applicant may be required to furnish a roentgenogram of the chest with a reading and a blood serologic report. . . . Temporary visitors to the United States are excluded from this requirement but may be subjected to appropriate examination when tuberculosis or syphilis is suspected."

This is a most interesting comment. Is there any reason why temporary visitors to the United States might not have tuberculosis or syphilis? And how does one suspect tuberculosis or syphilis in a fully clothed person who has not been given an examination? And what was done before Sept. 1, 1948?

Let me enumerate some facts which may throw light on this situation. I was the first medical officer of the United States Public Health Service to be attached to the consulate in Berlin, Germany, after the end of the war, being one of four such officers sent to Germany in early 1946 for the purpose of implementing President Truman's program to admit displaced persons to America. By chance, I was the only one of the four officers who had had any formal training in tuberculosis control. We were given a stethoscope, some eye charts, a case of tongue depressors and a blood pressure cuff and told to get going. In fairness to the United States Public Health Service it must be mentioned that we did not take orders from them, being "loaned" as medical advisors to the State Department. It should also be mentioned that by no means did the State Department have to comply with our suggestions. In fact, I am sure that they didn't very often and have since wondered whether it would not have been better for the American taxpayers if we all had stayed home. Consular officers in charge soon made it known that it was quantity and not quality they were interested in. No doubt somebody back in Washington was demanding action from them. They were not the least interested in making arrangements for roentgenograms or laboratory work to exclude contagious disease; they were admittedly only interested in numbers and quotas. The other three officers mentioned were sent to Stuttgart, Frankfurt and Munich. How many cases slipped by their stethoscopes through no fault of their own, we will never know. They felt just as much concern over this as did I.

As regards Berlin, every one knew that tuberculosis was rampant there and, while most of the aliens seeking visas at the consulate were previously examined by physicians of their own choice in Berlin, or by UNRRA physicians on duty in the displaced persons' camps, it was mandatory that they be examined by an authorized physician detailed to the U. S. Consulate before their final papers could be issued for travel to the United States.

The importance of this measure was soon apparent, for, without exception, all applicants for visas presented me with medical certificates attesting to their being free from disease or defects which would prevent them from earning a living. On examining them myself, the disparity between the results of my examination and that done by their own physician was astonishing. It seemed incredible that by inspection alone one could miss such defects as blindness, bilateral cataracts, missing legs and arms, huge hernias, depressed skull fractures, paralyses of extremities and the face, and mental defects. One gained the impression that the bulk of "physicians" practicing in Berlin at that time would sign any statement for a consideration. There is absolutely no reason to think this condition has changed today. I have every reason to believe that many of these so-called doctors never saw the inside of a medical school. They are reaping a harvest while thousands of competent and qualified German physicians are banned from practicing their profession because they are not yet de-Nazified, having held an honorary rank in the S.S. or S.A. Such rank was mostly commensurate with professional achievement rather than their political views. You might say it corresponded to our American College of Surgeons. All professional persons were in the same boat, whether they were school teachers, college professors, engineers, lawyers or physicians. Today, as then, a pack of cigarets or a half pound of coffee would secure from "lung specialists" an affidavit stating "no disease is present." They can probably furnish a roentgenogram of a healthy chest, too, for a small fee! Before one condemns Berlin physicians too much, it must be stated that over 40 per cent of these "diagnostic errors" which I discovered were made by UNRRA physicians, many of whom were graduates of foreign medical schools and could hardly speak English. This should be comforting to the American taxpayers, since they were all commissioned officers. This does not mean, nor am I saying, that there were not competent physicians connected with UNRRA. I am merely reporting what I saw with my own eyes in Berlin.

I took it on myself to put into operation a complete laboratory screening program in the face of tremendous opposition and personal difficulty, not the least of which was lack of both understanding and support; opposition came as well from bureaucrats interested only in quota numbers.

Where to find x-ray apparatus for the job? The Army hospital in Berlin was neither equipped, authorized nor too enthusiastic about giving roentgen examinations and doing blood tests and urinalyses on these displaced persons, since it would overtax their facilities to the breaking point. The UNRRA camp had an excellent German army 35 mm. Siemens-Reineger photofluorographic unit available and no qualified physician to read the films. They, however, would not loan it to the consulate; yet we had to screen these very same persons seeking visas to America. The Russian Army on entering Berlin had ransacked all the hospitals with the result that all existing x-ray equipment was destroyed, carried off or thrown out in the street to rust.

A most cooperative officer, Lieutenant Colonel Ray Connor of the United States Army, Public Health Branch, not only personally took me around to several German hospitals where we "borrowed" some office equipment, but directed me to Professor Horst Boenig, noted pathologist, author of several textbooks on embryology and former professor at the University of Berlin. Professor Boenig was at that time curator of Oskar-Helene Heim, a famous orthopedic hospital. Boenig had many difficulties with the Nazis during the war chiefly because he was a staunch Catholic, and, in addition, was directly responsible for keeping many young Jewish medical students from being expelled from school, much to the displeasure of certain Nazi bigwigs. Boenig, who could not speak one word of English,

put his patched-up, broken-down, ancient x-ray apparatus at my disposal, provided that I could procure the necessary film and chemicals for developing, since the little he had at his disposal was badly needed by inmates of the hospital. This alone was an operation of no small magnitude, since all materials had to be procured from German sources, and in all cases by barter arrangement. Neither the State Department nor any other department was interested in this matter, and so I was entirely on my own.

This x-ray apparatus, being one of few operating in Berlin, was in operation almost eighteen hours daily. Since electric power was rationed (which meant the current might be shut off from four to eight hours daily), it was necessary to crowd much work into the hours when the current was available. The fact that one was never sure when the current would be shut off did not help matters. Long lines of ill and injured German civilians on carts, stretchers and crutches were drawn up in the dark, cold, damp, tomblike halls of the bombed-out and fire-gutted hospital, awaiting their turn for roentgen examination. The hospital owned no spare x-ray tube, and, if the one in operation ever blew out, its loss would have been a major catastrophe to the hospital and to the x-ray screening program which I had set up with my own judgment and without official sanction. I had to even purchase x-ray view boxes with American cigarets, since my superior would not authorize such purchase.

All aliens seeking visas to the United States were sent daily to Oskar-Helene Heim for a large roentgenogram of the chest. The addition of fifty or more of this group daily to the already long line of ill patients in the bombed-out hospital corridors awaiting their appointments created many unpleasant incidents. This, in spite of the fact that these aliens and displaced persons were placed at the head of the line or even taken into the x-ray room first. I have personally witnessed these displaced persons cursing and striking the stretcher patients with canes, simply because they were Germans. It was not a happy picture. All costs of this laboratory work were paid for by the local German population in Berlin, and not by those securing the examinations, nor by the State Department, nor by the United States Public Health Service. One month the burgomaster of Zehlendorf refused to pay the bill, and since the whole program would have collapsed, my assistant, a young German medical student, gave her entire life savings to Professor Boenig so that he could meet the salary of his staff. She was discharged without reason two months later!

Professor Boenig and his half-starved staff could have become wealthy or at least a bit better nourished in a short time from the bribes offered by some of these displaced persons who suspected or even knew they had tuberculosis. To the credit of Boenig and his staff, they never wavered. It was fairly common to be offered bribes of diamonds, gold, jewelry, cameras or, more important, bacon, butter, eggs and cigarets in return for a "perfect" roentgenogram of the chest. For playing the game square, Professor Boenig and his over-worked staff were roundly cursed and abused by those sent there for their free laboratory examinations. In addition, shortly before I left Berlin, Professor Boenig was given a few hours' notice to leave the hospital and cease the practice of medicine. The charge was that he had falsified his *Fragebogen*—this in spite of the fact that he had been officially cleared in the courts of the charge.

All roentgenograms taken on these displaced persons were read by myself. It would have been hazardous to trust any other local physicians. In correlating the physical and roentgen findings of several thousand examinations, it became evident what every one knows—that the stethoscope has absolutely no place in the diagnosis of pulmonary tuberculosis. When one is confronted with this class of person, symptoms are of no value, for they admit nothing and deny everything. Thus, left with a serial study of roentgenograms as a sole criterion of diagnosis (laboratory facilities, tuberculin testing, animal inoculation, gastric washings and so forth are impossible to procure or carry out) one must necessarily defer a high percentage of cases.

Deferring such cases for future examination was a particularly heart-breaking task. Threats of suicide and physical violence were common, as were threats of political pressure to have me ousted from my position. Many of these persons came into Berlin from the Russian zone at great personal peril to themselves and families. They had to carry food and their entire belongings with them, since they never for a moment imagined that they would not pass the physical examination and would therefore have to return to their former homes. They bitterly resented a physical examination because they already had a "paper" for which they had paid a pretty penny to prove that they were healthy. For some, deferment meant a trip back into the Russian zone. For women, many of whom had suffered mass rape at the hands of the Russians, it was like a death sentence. Since none of these people bothered to put by food or wood or fuel, it literally meant sending them back to nothing. In only a few instances was it possible to procure food and temporary lodging at the local UNRRA camps until sufficient time had elapsed for another roentgenogram, and then only if the subjects were Jewish. From what I could observe, the Catholics, Protestants and those of mixed marriage were left to shift for themselves. Having no one to take care of them in this situation, they could only slip back into the cesspool of human misery —to spread their tuberculosis. Jewish organizations rallied to the need of their people and provided a tuberculosis sanatorium in Switzerland.

If we are to prevent the spread of pulmonary tuberculosis to our shores, I believe the following measures would seem both sensible and practical:

1. All aliens seeking entry to this country should be given a thorough physical examination by a qualified physician who understands pulmonary tuberculosis and who has had some training in reading roentgenograms so that he will not be at the mercy of local consultants. This physician should be interested enough in his position that he will examine the disrobed patient himself and not be satisfied with looking into a bundled-up applicant's mouth after inquiring as to the number of children in the family or—which is worse—delegating the whole job to a Public Health nurse who cannot even speak the language of the applicant!

2. All persons should have roentgenograms of their own chest as an integral part of a physical examination. The stethoscope has no place in an examination of the chest of these patients.

3. Establish with Army or other official agencies a number of controlled hospital beds with available laboratory facilities for sputum analysis, gastric washings, etc., for these deferred cases. This would reduce the hardships attendant on the long waiting period for a serial roentgenographic study.

4. Settle for once and all time, by regulation or education, in the mind of the examining doctor the fact that old persons can have active tuberculosis and that age, per se, does not protect them from having it or spreading it.

5. As an alternative, change the existing immigration laws as they affect displaced persons. Let them all enter the country with the proviso that they enter institutions immediately. Since we are going to have to feed them no matter where they are, the taxpayer seems to be involved either way.

F. KENNETH ALBRECHT, M.D., Director
Tuberculosis Control Division
Kansas State Board of Health
Topeka, Kansas

Council on Medical Education and Hospitals

APPROVAL OF THE AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

During the past year the American Board of Preventive Medicine and Public Health completed its organization and was officially approved by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association on Feb. 8, 1949. This board is the seventeenth examining board in the specialties to be approved by the Council.

The first meeting of the Board will be held in Washington, D. C., April 25-26, 1949, to review applications submitted by the Interim Board on Preventive Medicine and Public Health comprising the surgeons general of the Army, Navy, Air Forces and Public Health Service. At this meeting also consideration will be given to the Founders' Group. The first examination of the Board will be held on May 14-16, 1949, in Washington, D. C.

The chairman of the Board is Dr. Walter L. Bierring, Des Moines, and the secretary-treasurer, Dr. Ernest L. Stebbins, 615 North Wolfe Street, Baltimore.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers, July 15; Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGOY: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part I.* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Boston, April 12-13. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Atlantic City, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Endorsement,* Denver., April 5. *Written,* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver 2.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, April 12-14. Supt. of Registration, Mr. Fred W. Ruegg, Capitol Bldg.. Springfield.

INDIANA: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MINNESOTA: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MONTANA: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

NEBRASKA:* *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humbie, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Graniff Bldg., Oklahoma City.

OREGON: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND:* *Examination.* Providence, April 7-8 and July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, March 7, April 4, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept of Registration. Miss Rena B. Loomis. 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dir.: K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, April 7-9. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, April 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: *Examination.* April 4, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

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OKLAHOMA: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.
OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.
SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St,. Yankton.
TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.
WISCONSIN: Madison, April 2. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Medical Motion Pictures

MOTION PICTURES ON NURSING EDUCATION

A Selected List of Motion Pictures and Slidefilms for Nursing Education has been prepared by Loretta E. Heidgerken, R.N., Ed.D., assistant professor of nursing education, The Catholic University of America, Washington 17. It contains a brief discussion of the intelligent utilization of motion pictures and slidefilms for nursing education. Approximately 210 motion pictures are classified according to subject and title including a brief abstract of each film. The slidefilms are classified according to title only. Copies of the list are procurable on purchase (price, $1) from Audio-Visual Center, Indiana University, Bloomington, Ind.

FILM REVIEWS

Animated Hematology—Bone Marrow. 16 mm., color, silent, 1,600 feet (1 reel), showing time forty-five minutes (sound speed). Produced in 1948 through a grant from the Armour Laboratories and edited by John H. Glynn, M.D., and Florian E. Schmidt, M.D., of their professional staff, in collaboration with Robert W. Keeton, M.D.; Carroll L. Birch, M.D., and Louis R. Limarzi, M.D., Department of Medicine, University of Illinois. Procurable on loan or purchase from Armour Laboratories, 1425 West Forty-Second Street, Chicago.

This motion picture presents current knowledge of normal and pathologic bone marrow in a clear and authoritative manner. The development of the subject is arranged under appropriate headings beginning with general considerations of normal bone marrow and progressing through embryology and development of bone marrow, technic of bone marrow study and finally pathology of bone marrow.

The picture summarizes the diagnosis and treatment of disorders of the blood and blood-forming organs. Emphasis is placed on the indications for sternal marrow aspiration and the dangers and limitations of this type of examination.

This film should be especially interesting to internists, residents and interns and would serve as a valuable supplement in courses in hematology for medical and postgraduate students.

Generally speaking the photography ranges from good to excellent. Some of the photomicrographs are only fair; however, others are especially good. The production is rather long and contains a great amount of material to be absorbed in one sitting.

They Live Again. 16 mm., black and white, sound, 675 feet (1 reel), showing time eighteen minutes. Prepared in 1944 by the British Council, London. Produced by the Gaumont British Instructional Ltd. Procurable on rental or purchase from British Information Services, 30 Rockefeller Plaza, New York 20, or local office.

This is a shortened version of the British motion picture entitled "Accident Service" (reviewed in THE JOURNAL Jan. 31, 1948, p. 348, and announced in THE JOURNAL May 8, 1948, p. 213, as a motion picture added to the American Medical Association Motion Picture Library) illustrating the program at a British Rehabilitation Center for complete restoration of injured coal miners. It portrays the story of a miner from the time of his injury when he received a compression fracture of a spinal vertebra until his return to work six months later.

The patient is shown being brought out of the mine after administration of first aid. He is transported to the accident ward of a general hospital and placed in suspension in a padded sling; later he is placed in a plaster cast, which he wears for four months. The film illustrates how the social service worker sets the patient's mind at ease, how the "works" physician follows through with his case and how physical therapy is started with exercises while the patient is still in the cast and with general exercises while the patient is in bed. After one week the patient attempts to walk, and this is followed by exercises in the hospital gymnasium, by gardening and outdoor exercises.

Progress continues, and at the end of four months the patient is sent to a special rehabilitation center in the country. Here he follows a planned scheme of activities which includes recreational activities such as billiards, darts, swimming, use of the library and attendance at lectures and concerts. In conjunction with this recreation he follows a routine of corrective exercises and occupational and recreational therapy which soon makes him "strong in mind and body." The patient's progress is followed by the same group of physicians who guided his care in the hospital, and after six months he is finally dismissed "once again a useful member of the community."

This film depicts the modern developments in physical medicine and rehabilitation clearly and concisely and is, in some respects, an improvement on the longer version. It is highly recommended to all physicians interested in rehabilitation and is suitable for general audiences.

Sclerotherapy. 16 mm., color, silent, 1,600 feet (1 reel), showing time sixty-six minutes. Prepared in 1948 by and procurable on loan fom H. I. Biegeleisen, M.D., 510 Madison Avenue, New York.

This motion picture presents an injection treatment in a variety of cases: varicose veins, "lymph legs," ganglion, hernia, hydrocele, hemorrhoids, pruritus ani and pilonidal sinuses.

The presentation is not recommended for general educational purposes in that it is simply a record of some of the author's cases. There is no discussion of the pathology, diagnosis, indications or contraindications for sclerosing therapy, and end results are not clearly shown. There is a rather indiscriminate use of sclerosing solutions with no mention of the type and amount of solution used and no recognition of the limitations of this form of treatment. Some of the terminology is different from that generally used and should have been explained.

Generally speaking, photography is poor to good. In several scenes there is a poor selection of background, which appears to be a black glossy stucco wall, and the high lights are somewhat distracting. In other scenes a blood pressure apparatus can be seen in the background. Closeup pictures do not show the vein in detail or the injection technic. In a few scenes there is considerable camera movement. In some cases the camera angles are not well selected and the physician's hands or arms obstruct the field. The film is much too long. A great amount of the material could be telescoped considerably. It is difficult to evaluate the end results since there is a variation of exposures in the "before and after" pictures. Several follow-up pictures are overexposed.

The Function of the Ear in Health and Disease. 16 mm., color, sound, 1,225 feet (1 reel), showing time thirty-two minutes. Prepared in 1948 and produced by H. G. Kobrak, M.D., Ph.D.; J. E. Hind, B.S., E.E., and R. B. Miller, B.A., M.D., Otological Laboratories of the Division of Otolaryngology, University of Chicago, through a grant for Postgraduate Studies in Otology by the Auralgan Research Division, Doho Chemical Company. Procurable on loan from Doho Chemical Company, 100 Varick Street, New York 13.

The film begins with a brief historical review of the early anatomists who described the hearing mechanism and the early physiologists who described its function.

The actual vibrations of the tympanic membrane and ossicular chain in response to sound vibrations have been photographed with the use of stroboscopic illumination consisting of an interruption of the light beam which produces an illusion of slow motion. Several types of ear diseases are depicted, in some of which there is interference with the vibratory movements of the ossicular chain. The response of the hearing mechanism to a hearing aid is demonstrated, and the response of the tympanic membrane and ossicular chain to orchestral music has been photographed.

The clinical material is interesting but incomplete from the point of covering the important types of hearing loss. Some of the labeling could be improved by placing the labels at one side of the illustration rather than over the structure. The film should be of particular interest to otologists; however, it is suitable for showing to general practitioners, medical students, nurses and laymen interested in problems of hearing.

The difficult photographic problems involved in this picture are well resolved by the author.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

18:117-140 (Nov.) 1948

*Use of Antibacterial Agents in Viral Respiratory Tract Infections. J. B. McLester, C. W. C. Moore II and N. K. Weaver.—p. 117.
Diabetes in Relation to Other Medical Problems. G. O. Segrest and S. Eichold.—p. 121.
Specialization in General Practice of Medicine. R. R. Kracke.—p. 124.

Antibacterial Agents in Viral Respiratory Infections.—McLester and his associates point out that the variable treatments given to patients with febrile diseases of the respiratory tract often include sulfonamide compound, penicillin, or both, despite the fact that neither of these antibacterial agents has any theoretic value in a virus disease. They hesitated to ignore a generally followed therapeutic custom in the treatment of the patients under their supervision at the Jefferson-Hillman Hospital in Birmingham, but decided to analyze the results obtained in 569 patients who were treated for disorders of the upper respiratory tract during the three years from 1945 to 1947, inclusive. They conclude that sulfonamide compounds and penicillin are of no value in the primary treatment of infections of the respiratory tract that are variously called cold, grip, influenza, viroid, nasopharyngitis, acute bronchitis, etc. They have no data on the effectiveness of the drugs in the prevention of complications but conclude that leukocytosis alone is not an indication of the presence of a complication that indicates treatment with these agents. In view of this lack of therapeutic value, plus the known dangers of the drugs, they felt that these antibacterial agents should be given to patients with infections of the respiratory tract only when there is reasonable evidence of infection with bacteria sensitive to such therapy.

American Heart Journal, St. Louis

36:481-640 (Oct.) 1948

Coronary Artery Disease in Men Eighteen to Thirty-Nine Years of Age: Report of 866 cases, 450 with Necropsy Examination. W. M. Yater, A. H. Traum, W. G. Brown and others.—p. 481.
Effect of Intravenous Aminophylline on Capacity for Effort Without Pain in Patient with Angina of Effort. H. Bakst, M. Kissin, S. Leibowitz and S. Rinzler.—p. 527.
Correlation of Electrocardiographic and Pathologic Findings in Anteroseptal Infarction. G. B. Myers, H. A. Klein and B. E. Stofer.—p. 535.
Effect of Intravenous Procaine on Electrocardiogram of Dogs. M. H. Uhley and M. Wilburne.—p. 576.
*Hitherto Undescribed Neurologic Manifestations of Digitalis Toxicity. R. C. Batterman and L. B. Gutner.—p. 582.
Acute Pericarditis of Benign Type. R. B. Logue and M. H. Wendkos.—p. 587.
*Acute Myocardial Infarction: Detailed Study of Dicumarol Therapy in 75 Consecutive Cases. H. Greisman and R. M. Marcus.—p. 600.

Neurologic Manifestations of Digitalis Toxicity.—Batterman and Gutner point out that the involvement of the central nervous system in digitalis intoxication has been recognized and frequently reported in the literature. They cite various types of visual disturbances, vertigo, headache, drowsiness, malaise, irritability and convulsions. They report observations on 10 patients who exhibited peripheral and cranial nerve symptoms due to overdosage with digitalis products. These complaints occurred in approximately 9 per cent of the patients manifesting toxicity from digitalis. The gastrointestinal symptoms have generally been considered the most typical of digitalis toxicity, but the authors have gained the impression that neurologic disturbances not only may occur earlier than the gastrointestinal symptoms, but may also be the only manifestation of digitalis toxicity. The neuralgic type of pain usually involved the lower third of the face simulating the syndrome of trigeminal neuralgia. The pain was characterized usually as a dull aching in the teeth or as a sharp and stabbing pain throughout the mandible or maxilla, or both. Other areas involved with typically neuralgic "shooting pains" were the upper extremity, lower lumbar area with posterior thigh radiation, and calf muscles. Parasthesias, such as tingling in the fingers and burning sensations in the feet, were also observed. The type of digitalis preparation administered apparently played no role in the occurrence of these neuralgic complaints. Toxic manifestations were noted with digitalis leaf, digitoxin, digoxin, gitalin and squill from Urginea maritima and that from Urginea indica. It is probable that the other cardiac glycosides when used in toxic doses will produce the same type of toxicity.

Dicumarol® Therapy in Myocardial Infarction.—Greisman and Marcus used dicumarol® in the management of 75 consecutive ward patients with acute myocardial infarction. The mortality rate was 9 per cent and the incidence of thromboembolic lesions was 4 per cent. These results reveal a decided improvement over the results obtained in a control series of 100 patients with acute myocardial infarction treated with conventional therapy. In the latter series there was a mortality rate of 35 per cent and an incidence of thromboembolic lesions of 21 per cent. There were no serious complications attributable to the use of dicumarol.®

American Journal of Clinical Pathology, Baltimore

18:757-834 (Oct.) 1948

*Hemolytic Anemia with Hemoglobinuria. D. Stats, L. R. Wasserman and N. Rosenthal.—p. 757.
Amyloid "Tumors" of Larynx, Trachea and Bronchi: Histologic Study of Fifteen Cases. D. B. Stark and J. R. McDonald.—p. 778.
Concept of Hepatic Clearance. A. E. Lewis.—p. 789.
Appendiceal Lesions in Prodromal Stage of Measles. M. A. Simon and H. C. Ballon.—p. 796.
Coronary Sclerosis in Infancy: Report of Three Autopsied Cases, Two in Siblings. M. L. Menten and G. H. Fetterman.—p. 805.
*Neurologic Sequelae in Macrocytic Anemia of Gastrointestinal Origin Following Folic Acid Therapy. L. M. Meyer.—p. 811.

Hemolytic Anemia with Hemoglobinuria.—During the past ten years Stats and his co-workers had an opportunity to study a large number of cases of hemoglobinuria. Four categories were encountered, namely, the Marchiafava-Micheli syndrome of paroxysmal nocturnal hemoglobinuria, cases caused by cold hemagglutinins, or by drugs and an idiopathic variety. They stress the importance of spectroscopy of plasma and urine and cite the main characteristics and differentiation of the absorption bands for the common hemoglobin derivatives. Exclusive of cases of chronic disease (mainly the Marchiafava-Micheli syndrome), hemoglobinuria was of short duration. The detection of persistent hemosiderinuria in the diagnosis of the Marchiafava-Micheli syndrome and the generally unexplored hemosiderinuria of the other hemoglobinurias are important. The relatively infrequent occurrence of serious impairment of renal function, especially in the chronic hemoglobinurias, is also pointed out. The authors indicate the serologic tests which should be performed in cases of hemoglobinuria in order to arrive at an accurate diagnosis. When anemia supervened, large and frequent blood transfusions were required. The authors believe that splenectomy is contraindicated in the hemoglobinemias or hemoglobinurias. In view of the reactions which followed blood transfusions in the Marchiafava-Micheli syndrome, a minimal number of transfusions should be given in such cases.

Neurologic Sequelae in Anemia After Folic Acid Therapy.—Meyer presents the case of a man, who at the age of 16, in 1926, was treated for macrocytic hyperchromic anemia, which developed as the result of ulcerative colitis. At this time the anemia responded to liver therapy. Repeated recurrences of macrocytic anemia after intestinal disturbances between the years 1928 to 1939 responded moderately well to diet and oral and parenteral liver therapy. In 1939 the patient was subjected to resection of the terminal ileum and ascending colon and regional ileitis was detected in the surgical specimen. A

year later the patient again had hyperchromic anemia which responded to injection of liver extract. The injections were followed by severe urticaria and occasionally by vasomotor collapse. After that the patient's blood status was maintained for several years with blood transfusions, but these too caused febrile reactions. Treatment with folic acid for thirteen months was followed by the development of peripheral neuritis and combined system disease. Successful desensitization to liver extract and treatment with this drug resulted in complete remission of the neurologic disease and return to health.

American Journal of Medicine, New York

5:629-782 (Nov.) 1948

Unknowns in the Biology of Syphilitic Infection. P. D. Rosahn.—p. 631.
Current Concepts of Immunity in Syphilis. H. J. Magnuson.—p. 641.
Epidemiology of Syphilis with Particular Reference to Contact Investigation. E. G. Clark.—p. 655.
Biologic False Positive Reaction in Serologic Tests for Syphilis. H. Neurath.—p. 670.
Nationwide Results in Treatment of Early Syphilis with Penicillin. F. W. Reynolds.—p. 679.
Penicillin Treatment of Early Syphilis. E. W. Thomas.—p. 687.
Prevention and Treatment of Prenatal Syphilis. N. R. Ingraham Jr. p. 693.
Penicillin in Benign Late and Visceral Syphilis. H. A. Tucker.—p. 702.
Significance of Spinal Fluid Findings in Neurosyphilis. B. Dattner. —p. 709.
Current Status of Penicillin Therapy in Neurosyphilis. H. C. Solomon. —p. 712.
*Venous Thrombosis and Pulmonary Embolism in Tuberculosis. D. W. Zahan and Charlotte T. Peirce.—p. 716.
Paroxysmal Hypertension Associated with Tabes Dorsalis: Report of 3 Cases. I. L. Bennett Jr. and A. Heyman.—p. 729.

Venous Thrombosis and Pulmonary Embolism in Tuberculosis.—Zahan and Peirce say that as the result of the recent wave of adverse criticism directed against bed rest as a therapeutic method, the surgeon, cardiologist, psychiatrist, obstetrician and, more recently, the phthisiologist have all deprecated its widespread use. This revolt against one of the oldest and most widely accepted therapeutic measures was occasioned by the loss of life caused by pulmonary embolic accidents. The danger of thromboembolism has been used by some internists and phthisiologists as an argument against the application of strict bed rest in the treatment of tuberculosis. A review of 3,672 autopsies at Fitzsimmons General Hospital of which 1,700 were on tuberculous subjects reveals an uncorrected incidence of thromboembolism in the tuberculous group of 2.1 per cent and a corrected incidence of 1.5 per cent. This incidence is less than one fifth of the figures reported in the literature for nontuberculous diseases. From this the authors deduce that the incidence of death from embolism is so low in tuberculosis as not to constitute a contraindication to treatment with strict bed rest.

American Journal of Ophthalmology, Chicago

31:1365-1538 (Nov.) 1948

SYMPOSIUM: CORNEAL TRANSPLANTATION
I. Selection of Cases. R. T. Paton.—p. 1365.
II. Technic. J. M. McLean.—p. 1370.
III. Complications. R. Castroviejo.—p. 1375.
IV. Physiopathology. A. E. Maumenee and W. Kornblueth.—p. 1384.
*V. Results. W. C. Owens, J. J. Frank, B. Leahey and others. —p. 1394.
Respiration of Stored Cornea. T. D. Duane.—p. 1400.
Some Factors in Surgical Treatment of Vertical Deviations. J. H. Dunnington.—p. 1404.
Antistine in Ocular Allergy. P. Hurwitz.—p. 1409.
Occlusion of Central Retinal Artery: Clinicopathologic Study. A. L. Kornzweig.—p. 1421.
Effect of Muscular Exercise on Dark Adaptation. J. P. Wendland. —p. 1429.
Postoperative Hypertropia. R. G. Scobee.—p. 1437.
Some Methods of Lid Repair and Reconstruction: VI. Reformation of Inferior Fornix. S. A. Fox.—p. 1441.
Postvaccinial Ocular Syndrome. E. Rosen.—p. 1443.
Fogging Method of Refraction: Comparative Analysis. J. M. O'Brien and R. E. Bannon.—p. 1453.
Binocular Refraction. P. W. Miles.—p. 1460.
Treatment of Superficial Corneal Injuries. A. R. Sherman.—p. 1467

Results of Corneal Transplantation.—Owens and his associates point out that statistical analysis of the results of corneal transplantation has been difficult because of the lack of a sufficiently large number of cases in any one clinic. To overcome this difficulty the American Academy of Ophthalmology made arrangements for a group of clinics to pool their material. Data have been collected on 417 corneal transplant operations. The graft remained clear in 36.5 per cent of the cases. The percentage of clear grafts varied greatly with the cause of the corneal opacity. The best results were obtained in cases of keratoconus (65.2 per cent), hereditary dystrophy (58.8 per cent), interstitial keratitis (49.0 per cent) and nonspecific inflammatory scars (46.9 per cent). Poor results were obtained in cases of active keratitis or corneal ulcer (23.1 per cent), scars from chemical burns (20.8 per cent), trauma (18.2 per cent) or gonococcus ulcers (8.7 per cent). The larger the size of the cornea and the greater the extent of corneal vascularization, the less were the chances of obtaining a clear graft. Of 229 patients with preoperative visual acuity of 20/200 or less, 36.2 per cent obtained a postoperative vision of 20/100 or better. The visual results after corneal transplantations in patients with preoperative visual acuity of 20/100 or better do not warrant the risk of operation.

American Journal of Public Health, New York

38:1499-1634 (Nov.) 1948

Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Eliot.—p. 1499.
Ailments of Health Departments. Florence R. Sabin.—p. 1508.
Twenty-Five Years in Maternal and Child Health. F. J. Underwood. —p. 1512.
Cave Sickness: New Disease Entity? A. M. Washburn, J. H. Tuohy and E. L. Davis.—p. 1521.
*Schick Testing and Diphtheria Immunization of United States Troops in Europe. H. A. Schulze.—p. 1527.
Sanitary Significance of Cocci in Swimming Pools. Cassandra Ritter and E. L. Treece.—p. 1532.
Origins of Public Health in United States. J. B. Blake.—p. 1539.
Appraising Medical Care Program. S. Etkin.—p. 1551.
Use of Medical-Social Service by Country Health Department: Account of Demonstration in Anne Arundel County, Maryland. W. J. French and Geneva Wiser.—p. 1555.
New Approach to Food Handler Training. J. L. Rowland and J. H. Fritz.—p. 1561.
Value of Routine Fluorograms as Measure for Detecting Cardiac Abnormalities: Report of Findings on 14,235 Routine (35 mm.) Photofluorograms. G. Berenson.—p. 1564.
Even with the Law on Our Side. R. P. Fowler.—p. 1569.

Diphtheria in U. S. Troops in Europe.—Schulze reports the results of the Schick test and Schick test control performed on 42,171 U. S. soldiers in the European theater during the period from December 1946 to February 1947. About 30 per cent of the persons aged less than 35 years were Schick positive or combined reactors. There was a definite rise in the percentage of Schick-positive persons from the lower to the higher age groups. This was due to a smaller proportion of persons in the higher age groups who were immunized in childhood, because of a longer interval in the older age groups during which immunity acquired in childhood could have worn off, or a reduction of the frequency of booster action because of the more sedentary habits of older age groups. Reactions to the control material occurred with the same frequency in the Schick-negative and Schick-positive group. There was an increase in the proportion of pseudo and combined reactors from the lower to the higher age groups. Schick-positive and Schick-positive combined reactors were immunized with fluid, toxoid preserved with formaldehyde, according to the following schedule: 0.1 cc., 0.5 cc., 1.0 cc. and 1.0 cc. The 0.5 cc. dose was given two days after the 0.1 cc. test dose. The other doses were given at three week intervals. In Schick-positive-control negative persons severe reactions consisting of local edema and induration more than 6 cm. in diameter or a marked constitutional reaction with a temperature over 101 F. occurred in 3.1 per cent of those taking the first dose and less frequently thereafter. Reactions in the Schick-positive-control positive group were about three times as frequent. During the twelve month period April 1947 to March 1948, following the program the diphtheria rate was 0.7 per thousand as compared with a rate of 4.8 for the twelve month period immediately preceding the program. Practically all cases that have occurred since the completion of the program were in those who had not been immunized at all or had not completed the immunization series because of administrative neglect. Diphtheria immunization of adults with fluid toxoid according to the schedule given is a practical and safe procedure.

American Review of Tuberculosis, New York

58:375-478 (Oct.) 1948

Pulmonary Affections of Occupational Origin. R. T. Johnstone.—p. 375.
*Streptomycin in Preparation for Collapse Therapy. J. D. Steele Jr. and T. R. Murphy.—p. 393.
Monaldi Catheterization of Tuberculous Cavities: Review of 34 Cases. Wm. A. Wilbur.—p. 402.
*Bronchoscopy in Pulmonary Tuberculosis: Study of Post-Bronchoscopic Increase of Disease. E. O. Coates Jr.—p. 412.
Modifications of Tuberculous Lesions in Patients Treated with Streptomycin. C. M. Flory, J. W. Correll, J. G. Kidd and others.—p. 421.
*Anatomic Change in Tuberculosis Following Streptomycin Therapy. O. Auerbach and G. N. Stemmermann.—p. 449.
Clinical Studies on Allergy to Tuberculin Following Primary Tuberculous Infection: Clinical Value of Recognizing State of Secondary Negative Allergy. R. T. Ellison.—p. 463.

Streptomycin in Collapse Therapy.—Steele and Murphy administered 0.75 Gm. to 2.0 Gm. of streptomycin daily in three divided doses in twenty-four hours to 17 patients, 13 women and 4 men between the ages of 17 and 54 years, with predominantly exudative pulmonary tuberculosis, in preparation for collapse therapy. The disease of 13 of these patients was progressive when treatment with streptomycin was instituted. The average preparatory period of treatment with streptomycin was 78.8 days. Twelve patients were prepared for thoracoplasty, 3 for intrapleural pneumothorax and 2 for extrapleural pneumonolysis. In addition to the preparatory period, all patients received streptomycin during and after the institution of collapse therapy. Streptomycin not only prepared the exudative lesions for collapse therapy but also halted the progression of the disease in 13 of the 17 patients. Without its use most of the patients would never have been favorable candidates for collapse therapy and some would probably have died from progression of their disease.

Postbronchoscopic Increase of Tuberculosis.—According to Coates, in a series of 473 bronchoscopies in 233 patients who had tubercle bacilli in their sputum at some time during their residence in the Trudeau Sanatorium, the incidence of roentgenographic increase of pulmonary tuberculosis in the two months immediately following bronchoscopy was no greater than that in other two month periods before bronchoscopy. Bronchoscopic observations in 73 bronchoscopies followed within two months by roentgenographic increase, as compared with those in 400 cases not showing such a postbronchoscopic increase, revealed essentially the same percentage of active endobronchial tuberculosis in the two groups. In a group of 59 patients who had roentgenographic evidence of increase of disease within two months after bronchoscopy, the percentage of cases of far advanced disease was no greater than in the remaining 174 patients who showed no such postbronchoscopic increases. The effect of progression of the disease before bronchoscopy on the course immediately after bronchoscopy was investigated in the group of 149 patients undergoing bronchoscopy only once. Thirty-five of these patients showed roentgenographic evidence of progression within two months preceding bronchoscopy, while 114 did not. In these two groups the incidence of roentgenographic increases in the two months following bronchoscopy was essentially the same.

Anatomic Changes Following Streptomycin.—Auerbach and Stemmermann performed necropsies on the cadavers of 7 men between the ages of 19 and 53 with pulmonary tuberculosis, who had died after receiving streptomycin for sixty to two hundred and ten days. The postmortem observations revealed that streptomycin is an aid in the healing of tuberculosis. It has a much greater effect on tuberculous foci in the superficial surfaces than on the foci in solid organs. The perifocal reaction surrounding acinous foci is rapidly and extensively resolved, thus diminishing the amount of fibrosis which would ordinarily occur in this zone. Tuberculous foci in the lung show a greater tendency to heal than in untreated patients. The contrast of the action of the drug on solid organs and superficial surfaces is best seen in acute generalized miliary tuberculosis, in which the healing changes in solid organs lag behind those in the lungs. The greatly decreased incidence of laryngeal and intestinal tuberculosis is also attributed to greater healing on superficial surfaces. The highly satisfactory clinical response observed in tuberculous meningitis seems to give further evidence of the action of streptomycin on superficial surfaces. Streptomycin does not appear to prevent dissemination of the disease either through the bronchial or lymphohematogenous routes, but, after such disseminations occur, the drug stimulates their more rapid healing.

Archives of Otolaryngology, Chicago

47:551-704 (May) 1948

*Lempert Decompression Operation for Hydrops of Endolymphatic Labyrinth in Ménière's Disease. J. Lempert.—p. 551.
Bacterial Flora of Nasopharynx in Relation to Common Cold. J. A. Kolmer, A. Bondi Jr. and Clare Schellinger.—p. 571.
Cholesteatoma and Chronic Otitis: Etiologic Problems. M. Diamant.—p. 581.
Test Findings Before and After Fenestration of Labyrinth. E. H. Campbell and D. Macfarlan.—p. 590.
Physiologic Surgery of Nares. S. Fomon, A. G. Silver, J. G. Gilbert and V. R. Syracuse.—p. 608.
Elongated Styloid Process: Further Observations and New Syndrome. W. W. Eagle.—p. 630.
Lymphoid Hyperplasia of Epipharynx: New Method for Control. S. E. Dalton.—p. 641.
Acute Nonspecific Infections of Parotid Gland: Review. O. E. Anderson.—p. 649.
Barrier Membrane of Cochlear Aqueduct: Histologic Studies on Patency of Cochlear Aqueduct. J. G. Waltner.—p. 656.

Decompression Operation for Hydrops of Labyrinth in Ménière's Disease.—Lempert points out that both the clinical picture and the histologic aspects of Ménière's disease permit the conclusion that it is a disease limited to the internal ear and that both the vestibular and the cochlear portion thereof are involved. It is therefore logical to assume that by effecting degeneration of both the vestibular and the cochlear part of the endolymphatic labyrinth in a case of monaural Ménière's disease, and thus preventing the recurrence of endolymphatic hydrops, it should be possible permanently to relieve the patient of the vertigo, which is vestibular in origin, and the tinnitus, which is probably of cochlear origin. The author describes a new technic for effecting atraumatic and aseptic degeneration of the endolymphatic labyrinth. The removal of the stapes and the round window membrane without traumatizing either the temporal bone or the endolymphatic labyrinth when executed under sterile precautions results in aseptic degeneration of the entire endolymphatic labyrinth and of the organ of Corti. Of the 10 patients who were operated on with this technic, 9 were freed from both vertigo and tinnitus. One was free of vertigo but not of tinnitus, though the intensity of the tinnitus even in this case has greatly diminished.

Bulletin of Johns Hopkins Hospital, Baltimore

83:367-462 (Nov.) 1948

Cultural Differentiation of Paracolon Bacilli. Isabelle G. Schaub.—p. 367.
Irradiation of Lymphoid Tissue in Diseases of Upper Respiratory Tract. D. F. Proctor, L. M. Polvogt and S. J. Crowe.—p. 383.
Renal Function Before and After Surgical Resection of Coarctation of Aorta. J. Genest, E. V. Newman, A. A. Kattus and others.—p. 429.
Physiologic Studies in Congenital Heart Disease: VI. Adaptations to Anoxia in Congenital Heart Disease with Cyanosis. R. J. Bing, L. D. Vandam, J. C. Handelsman and others.—p. 439.

California Medicine, San Francisco

69:333-408 (Nov.) 1948

What's New in Communicable Diseases. E. B. Shaw.—p. 333.
What's New in Field of Immunization. J. J. Miller Jr.—p. 336.
Experimental Use of Testosterone Compounds in Premature Infants. E. K. Shelton and J. S. Mark.—p. 339.
Some Diagnostic and Therapeutic Technics in Cystic Fibrosis of Pancreas. G. E. Gibbs.—p. 341.
Important Factors in Diagnosis of Patent Ductus Arteriosus. S. J. Robinson.—p. 345.
Metatarsus Varus. Frances Baker.—p. 346.
What's New in Treatment of Erythroblastosis. H. Kirchdoerfer.—p. 349.
*Place of Non-Operative Treatment in Therapy of Perforated Peptic Ulcer. R. Cohn and C. Mathewson Jr.—p. 351.
Management of Acute Peritonitis. C. J. Berne.—p. 357.
Role of Tissue Permeability with Particular Reference to Blood-Brain Barrier in Diseases of Central Nervous System. R. B. Aird.—p. 360.
Management of Acute and Chronic Pulmonary Abscess. P. C. Samson and D. J. Dugan.—p. 364.
Analysis of Fatal Cases of Poliomyelitis. W. M. Edwards.—p. 367.
Dangers of Local External Heat and Trauma to Ischemic Tissues in Peripheral Vascular Diseases. R. J. Popkin.—p. 374.

Nonoperative Treatment of Perforated Peptic Ulcer.—Cohn and Mathewson point out that although surgical closure of the perforation is usually successful, the treatment of the patient with long-standing perforation or of one with generalized

peritonitis is far from satisfactory. They reviewed the records of 265 patients with perforated ulcer, who were treated at the San Francisco Hospital. Ten patients with proved perforated ulcers recovered without operation on the following regimen: constant gastric suction through a Levine tube, nothing by mouth, parenteral dextrose solution and vitamins and sedation. Antibiotics were used in only 3 cases. In all cases except one, free air was demonstrable by roentgenogram. In this patient an abscess was found walled off by the liver at the site of perforation. In the experience at the authors' hospital, free air is present in 85 to 90 per cent of all cases of perforated ulcers. Its absence suggests that the perforation has been rapidly sealed off. If no free air is present in a patient who is clinically improving, they believe it safe to start out with the nonoperative treatment. The authors cite patients who recovered without operation and those who died without operation and those who died after operation. The over-all mortality rate in the 265 patients was 12 per cent, whereas the operative mortality rate was 6.4 per cent. They believe it justifiable to delay operation in all those patients in whom peritonitis is apparently becoming localized and who seem to be improving clinically. One would be encouraged in this stand if no free air could be demonstrated in the peritoneal cavity by roentgenogram.

Florida Medical Association Journal, Jacksonville

35:195-260 (Oct.) 1948

Hypertension: Recent Trends in Surgical Treatment. A. C. Williams. —p. 211.
Dacryocystorhinostomy. M. W. Hester.—p. 223.
Electroshock Therapy. J. B. O'Connor.—p. 227.

35:261-332 (Nov.) 1948

Hemiplegia: Treatment by Stellate Ganglion Block. T. C. Butt and F. Mathers.—p. 285.
Progressive Spinal Muscular Atrophy. I. I. Weintraub.—p. 291.
Points on Immunization Procedures and Quarantine. J. A. Toomey. —p. 295.
Diagnosis of Secondary Syphilis. J. A. Barger.—p. 298.

Hawaii Medical Journal, Honolulu

8:1-76 (Sept.-Oct.) 1948. **Partial Index**

Clinical and Experimental Research in Field of Cancer. S. C. Harvey. —p. 17.
Cytologic Diagnosis of Cancer by Smear Technic: I. History, Applications and Future of Method. W. B. Quisenberry.—p. 29.
Carcinoma of Stomach in Hawaii: Review of 121 Gastric Lesions at Queen's Hospital. J. McClanahan, J. A. Mitchel and H. E. Milliken. —p. 32.
Treatment of Carcinoma of Cervix. F. C. Spencer.—p. 34.

Journal of Allergy, St. Louis

19:353-428 (Nov.) 1948

Study on Mechanism of Dermatitis Venenata in Guinea Pig with Demonstration of Skin-Sensitizing Antibody by Passive Transfer. S. B. Crepea and R. A. Cooke.—p. 353.
Experiments on Histamine Refractoriness. L. Farmer.—p. 358.
Influence of Intravenously Administered Benadryl on Blood Pressure and Electrocardiogram. G. Mackmull.—p. 365.
Studies on Chronic Toxicity of Pyranisamine Maleate (Neo-Antergan Maleate) in Animals. C. A. Winter, S. Kuna and C. W. Mushett. —p. 371.
Use of Antihistaminic Drugs in Treating Patients Allergic to Liver Extract. H. M. Carryer and G. A. Koelsche.—p. 376.
*Side Effects of Three Antihistaminic Drugs. D. E. Holtkamp, D. D. Hagerman and R. W. Whitehead.—p. 384.
Fatality Associated with Benadryl Therapy: Report of Case. N. S. Blackman and J. C. Hayes.—p. 390.
Histamine Antagonists: XII. Nechetramine, 2-(N-Dimethylaminoethyl-N-p-Methoxybenzyl)-Aminopyrimidine Hydrochloride; Clinical and Pharmacologic Results. T. B. Bernstein and S. M. Feinberg.—p. 393.
Contact Dermatitis of Celery Farmers. J. C. Wiswell, J. W. Irwin, E. F. Guba and others.—p. 396.
Distribution of Ragweed Pollen and Alternaria Spores in Upper Atmosphere. H. A. Heise and Eugenia R. Heise.—p. 403.
Unusual Case of Hypersensitivity to Cold Complicated by Paroxysmal Diarrhea. J. P. McGovern.—p. 408.

Side Effects of Antihistaminic Drugs.—Holtkamp and his associates observed side effects from the use of diphenhydramine hydrochloride (benadryl®) and tripelennamine hydrochloride (pyribenzamine®). Usually these side effects consisted of drowsiness, dizziness or nervousness, but more severe reactions such as "benadryl jag," unconsciousness, narcolepsy and epileptiform movements have been seen. Recently, a combination of 25 mg. diphenhydramine hydrochloride and 100 mg. aminophylline (per tablet), hydryllin,® has been added to the antihistaminic drugs. The present study was made to obtain a more adequate basis for the comparison of the side effects caused by these three drugs. The drugs were given in therapeutic dosage to healthy college students. It was found that mental ability, reaction time and minimum distance of two point discrimination were appreciably altered by these drugs in over half the subjects tested. Tripelennamine caused a greater number to show a decrease in efficiency than did diphenhydramine, but the latter occasionally caused decreases of considerably greater magnitude. Hydryllin® caused an increased efficiency in a majority of the subjects but adversely affected a few. A patient who first takes these drugs should be observed carefully and should be warned of the dangers inherent in his reduced ability to react quickly. These factors are especially important in driving an automobile.

Journal of Bacteriology, Baltimore

56:509-698 (Nov.) 1948. **Partial Index**

Observations on Growth of Psittacosis Virus in Chorioallantoic Membranes by Electron Microscope. F. Heinmets and O. J. Golub.—p. 509.
Studies on Streptomycin. Jane Henry, R. J. Henry, R. D. Housewright and S. Berkman.—p. 527.
Factors Influencing Histoplasmin Formation. S. B. Salvin and G. A. Hottle.—p. 541.
Influence of Sodium Acetate Upon Dissociation of Strain of Hemolytic Streptococcus. Alice P. McIlroy, A. E. Axelrod and R. R. Mellon. —p. 547.
Studies on Heat Resistance. F. L. Davis Jr. and O. B. Williams. —p. 555.
New Preparation Technics for Electron Microscopy of Bacteria. J. Hiller, G. Knaysi and R. F. Baker.—p. 569.
Unusual Strain of Streptococcus Isolated from Subacute Bacterial Endocarditis. Helen Auerbach and O. Felsenfeld.—p. 587.
Electron Micrograph Studies of Two Strains of Pleuropneumonialike (L) Organisms of Human Derivation. W. E. Smith, J. Hillier and S. Mudd.—p. 589.
L-Type Variation and Bacterial Reproduction by Large Bodies as Seen in Electron Micrographic Studies of Bacteroides Funduliformis. W. E. Smith, S. Mudd and J. Hillier.—p. 603.
Intestinal Microflora of Hens as Influenced by Various Carbohydrates in Biotin-Deficient Ration. K. R. Johansson, W. B. Sarles and S. K. Shapiro.—p. 619.
Comparative Study of In Vitro Bacteriostatic Action of Some Simple Derivatives of Furan, Thiophene, and Pyrrole. W. C. Ward and M. C. Dodd.—p. 649.
Biochemical Properties of Toxins of Clostridium Novyi and Clostridium Hemolyticum. R. C. Bard and L. S. McClung.—p. 665.
Enzymic Activity of Bacteriophage-Culture Lysates: I. A Capsule Lysin Active Against Klebsiella Pneumoniae Type A. J. C. Humphries, —p. 683.

Journal of Experimental Medicine, New York

88:503-568 (Nov.) 1948

*Hemolysin Associated with Mumps Virus. H. R. Morgan, J. F. Enders and P. F. Wagley.—p. 503.
Relation of Infectious and Hemagglutination Titers to Adaptation of Influenza Virus to Mice. Cheng-I Wang.—p. 515.
Specific Serum Agglutination of Erythrocytes Sensitized with Extracts of Tubercle Bacilli. G. Middlebrook and René J. Dubos.—p. 521.
Neoplastic Potentialities of Mouse Embryo Tissues: IV. Lung Adenomas in Baby Mice as Result of Prenatal Exposure to Urethane. W. E. Smith and P. Rous.—p. 529.
Structure of Human Skin Collagen as Studied with Electron Microscope. J. Gross and F. O. Schmitt.—p. 555.

Hemolysin Associated with Mumps Virus.—Morgan and his co-workers say that during experiments by some of the members of their group hemolysis was observed in suspensions of chicken erythrocytes exposed at 37 C. to amniotic or allantoic fluids derived from chick embryos infected with mumps virus. The results of systematic studies of this hemolytic factor are described in the present communication. A factor capable of causing hemolysis of the erythrocytes of man, chicken and sheep occurs in the amniotic and allantoic fluids of chick embryos infected with the virus of mumps. The hemolysin has not been found in normal fluids or in those infected with PR8 or Lee B strains of influenza virus. The hemolysin is definitely inhibited by the serum of man and monkey convalescent from mumps, but only slightly by the serum of the acute phase. The hemolysin is almost completely inactivated at 50 C. after ten minutes. It exhibits maximal activity at 37 C. and is completely inactive at 4 C. A p_H range from about 7.0 to 8.0 allows for maximum activity. Adsorption and elution of the hemolysin

with red blood cells has been demonstrated. After elution of the hemolysin, the red blood cells exhibit an increased osmotic fragility. Similar treatment of red cells with influenza virus did not alter this property.

Journal of Immunology, Baltimore

60:303-442 (Nov.) 1948

Studies in Cellular Growth. M. Maltz, D. M. Spain and N. Molomut. —p. 303.
Quantitative Studies of Complement-Fixation. A. G. Osler and M. Heidelberger.—p. 317.
Prolonged Protection of Guinea Pigs Against Histamine by Means of Pellets of Pyribenzamine in Beeswax Implanted Subcutaneously. A. Kellner, J. W. Correll, A. T. Ladd and E. C. Alvord Jr.—p. 339.
Reversal in Vivo by BAL of Inactivation of Influenza A Virus and Diplococcus Pneumoniae by Bichloride of Mercury. M. Klein and J. E. Perez.—p. 349.
Relation of Antagonistic Coliform Organisms to Shigella Infections: II. Observations in Acute Infections. S. P. Halbert.—p. 359.
Antibody Formation and Sensitization with Aid of Adjuvants. J. Freund, K. J. Thompson, H. B. Hough and others.—p. 383.
Attempt to Produce Bacterial Agglutinins in Vitro. L. B. Fastier. —p. 399.
Therapy of Experimental Brucella Infection in Developing Chick Embryo. III. Synergistic Action of Streptomycin and Sulfadiazine. J. M. Shaffer and W. W. Spink.—p. 405.
Studies in Cellular Growth: III. Effect of Antigranulation-Tissue-Serum on Wound Healing in Mice. M. Maltz.—p. 411.
Neurotoxic Symptoms Produced in Syrian Hamster (Cricetus Auratus) by Diphtherial Toxin. L. Olitzki, L. A. Stuczynski and N. Grossowicz. —p. 419.
Preparation of Serologic Antigen and Vaccine for Experimental Tsutsugamushi Disease (Scrub Typhus). C. A. Bailey, F. H. Diercks and J. E. Proffitt.—p. 431.

Journal of Pediatrics, St. Louis

33:525-674 (Nov.) 1948

*Diagnosis of Pulmonary Stenosis by Angiocardiography. M. J. Carson, T. H. Burford, W. G. Scott and J. Goodfriend.—p. 525.
Eczema Vaccinatum: Recovery of Vaccine Virus from Cutaneous Lesions of Two Children and Demonstration of Antibody Rise During Convalescence. I. Ruchman and Katherine Dodd.—p. 544.
*Streptomycin in Treatment of Pertussis. H. Leichenger and A. Schultz. —p. 552.
Venous Pressures in Children in Health and Disease. H. R. Irwin and T. Winsor.—p. 556.
The Squeezogram: Objective Method for Recording Course of Chorea. J. J. Cohen and J. Dancis.—p. 564.
Grid for Recording Weight of Premature Infants. J. Dancis, J. R. O'Connell and L. E. Holt Jr.—p. 570.
Experiences with Epidemic Diarrhea of Newborn: Use of Nutramigen in Its Dietary Management. J. P. Scott and Josephine G. Kety. —p. 573.
*Treatment of Acute Hematogenous Osteomyelitis of Long Bones in Infants and Children. C. A. Beerman.—p. 578.
Dwarfism of Undetermined Etiology: Study of Birth Weight and Subsequent Development. P. Troen and M. S. Blumberg.—p. 591.
Tension Type of Congenital Pulmonary Cyst. J. M. Walker. W. B. Taggart and H. J. Staton.—p. 601.
Acne Neonatorum: Report of Acne Vulgaris in 2 Infants. H. H. Perlman.—p. 609.
Incidence of Diseases Among Reading Failures and Nonfailures. T. H. Eames.—p. 614.

Diagnosis of Pulmonary Stenosis by Angiocardiography.—Carson and his associates feel that angiocardiography is of value in infants and children who are too small for cardiac catheterization. The tautograph developed by one of the authors (Scott) makes ten radiographic exposures within ten seconds. Each patient fasts for at least four hours before the procedure. Infants and children are given a general anesthetic, older patients a local anesthetic. In patients with cyanotic heart disease and polycythemia, subcutaneous fluids are administered preoperatively and oxygen is given concomitantly with the anesthetic. The patient is placed on the tautograph, and the antecubital vein is isolated. The distal end is ligated and a cannula is inserted into the proximal end and tied in place. A slow intravenous drip of isotonic sodium chloride solution is begun through a three way stopcock to insure patency of the cannula. A few minims of 70 per cent iodopyracet is injected and, if after several minutes no reaction has occurred, the final injection is made. Infants 3 months to 2 years of age receive 10 to 18 cc. of iodopyracet, and older children 20 to 40 cc. The injection must be made as rapidly as possible in order to obtain a sufficiently dense concentration. In the tetralogy of Fallot (1) an interventricular septal defect is indicated when iodopyracet flows directly from the right ventricle into the left ventricle; (2) simultaneous opacification of the aorta, pulmonary conus and pulmonary arteries indicates the presence of an overriding aorta with the iodopyracet flowing simultaneously into both the aorta and the pulmonary conus from the right ventricle; (3) enlargement of the right ventricle is seen; (4) the decreased caliber of the pulmonary arteries is visualized. This last observation will differentiate tetralogy of Fallot from Eisenmenger's complex, in which pulmonary arteries of normal or unusually large size are seen. In cases of nonfunctioning right ventricle with tricuspid stenosis opaque material enters the right auricle from the superior vena cava. None enters the right ventricle, but instead it can be seen entering the left auricle and then an enlarged left ventricle. Then there is simultaneous visualization of the aorta, and if pulmonary stenosis is present, small pulmonary arteries are visualized. Persistent truncus arteriosus with stenotic pulmonary arteries will show a large right ventricle; a large interventricular septal defect is indicated by rapid opacification of the left ventricle in the second or the third roentgenogram; in these same roentgenograms a single large vessel is seen emerging from the region of the ventricles and, because opacification of this vessel occurs at the same time the left ventricle begins to be visualized, it is likely that the truncus overrides the septal defect; no pulmonary conus is seen, but small pulmonary arteries can be seen arising from the single large truncus.

Streptomycin in Pertussis.—Only patients having uncomplicated whooping cough were included in this study by Leichenger and Schultz. The patients were assigned in rotation to one of three groups. Those in the first group received streptomycin by the aerosol route; those in the second group received it intramuscularly, and those in the third received the usual symptomatic whooping cough treatment of the Cook County Contagious Disease Hospital. The latter were considered controls. Each group comprised 8 patients. While this is a small series, daily observation of these patients gave the impression that those who received streptomycin via aerosol did much better clinically than the other two groups, despite the fact that the children had to be awakened to receive the treatment. This awakening frequently initiated a paroxysm. No toxic effects of the drug were noted with the exception of a transitory generalized morbilliform eruption which lasted two days in 1 patient who received streptomycin intramuscularly. Since there had been no previous experience with streptomycin in whooping cough, the dosage of 1 Gm. a day and the length of treatment of one week were arbitrarily decided on. The authors believe that there is sufficient evidence that streptomycin is of clinical benefit in the treatment of pertussis to justify a more extended use.

Treatment of Acute Osteomyelitis of Long Bones in Infants and Children.—Beerman shows that during the past few years the treatment of acute hematogenous osteomyelitis has changed so that the management is now chiefly medical rather than surgical. He presents observations on 7 patients and outlines a plan for the treatment. It is important to have a high degree of suspicion of the presence of the disease. Treatment is started at the earliest possible moment when a tentative diagnosis is made, or when some other diagnosis, such as cellulitis, seems likely but osteomyelitis cannot be ruled out completely. Supportive care for dehydration and pain is given. Penicillin is administered in a dosage of 50,000 units every three hours intramuscularly for fourteen to twenty-eight days or more. Orthopedic consultation is obtained, but generally the care is chiefly medical unless deep abscesses are present. Such abscesses are aspirated or drained. If the disease is of moderate duration (six to seven days), there is a great probability that surgical care will play the major role, with penicillin an essential aid but not effective as a sole agent. Beerman does not use plaster immobilization, for he feels that ordinary rest in bed is adequate splinting in cases in which only medical care is necessary. When deep abscesses are present or when extensive bone involvement is noted because of delay in diagnosis, or because of a particularly massive and virulent infection, splints are used. Weight bearing is not permitted until roentgen studies show regression of bone lesions. Roentgen examinations are recommended every one to two weeks until the bone changes

are showing regression, and then every four to eight weeks until complete healing. After complete healing, the patient should be followed every six months to a year for several years by roentgen studies.

Military Surgeon, Washington, D. C.

103:335-418 (Nov.) 1948. **Partial Index**

Use of Streptomycin in Treatment of Tuberculosis. S. Jacobs, A. A. Doerner and A. D. Miller.—p. 335.
Cytologic Method of Cancer Detection: Review. G. Adams.—p. 341.
*Mesenteric Vascular Occlusion. J. D. Rives.—p. 348.
Use of Maintenance Mercurials in Cardiac Failure. J. R. Green and Gwendolyn S. Patterson.—p. 354.
Malignant Melanoma: Comparative Study of Incidence in Negro Race. R. J. Muelling Jr.—p. 359.
Diffuse Progressive Interstitial Fibrosis of Lungs. A. J. Beams and O. Harmos.—p. 364.
Surgical Treatment of Varicose Veins. O. C. Williams and C. W. Applewhite.—p. 366.
Canicola Fever: Case Report. A. A. Doerner and T. Hernandez. —p. 368.
Oral Penicillin in Treatment of Acute Respiratory Infections: Preliminary Report. L. L. Terry and M. Friedman.—p. 377.
Intraperitoneal Rupture of Bladder: Report of 5 Cases. C. Ferguson, T. S. Hershey and J. Kovacs Jr.—p. 378.
Neoplasms of Lungs. J. C. Henthorne.—p. 387.
Intravenous Ether (Diethyloxide) Used in Treatment of Cases of Impending Gangrene and Impaired Circulation. O. C. Williams. —p. 388.
Sympathectomy as Adjuvant in Treatment of Chronic Osteomyelitis—Preliminary Report. H. R. Markheim.—p. 388.
Ulcer Problem Among Military Personnel During World War II and Its Postwar Sequels. A. E. Hussar.—p. 392.
Fifty Shock Therapy Theories. H. L. Gordon.—p. 397.

Mesenteric Vascular Occlusion.—According to Rives, occlusion of the blood supply of the bowel may result from mechanical causes as in strangulation or from either thrombosis or embolism. The mortality of mesenteric vascular occlusion is extremely high because (*a*) many patients are in extremis from cardiovascular disease when it occurs and (*b*) in most others diagnosis and treatment are too long delayed. Features that aid in diagnosis are a history of a known predisposing cause, the character of the onset, the early disappearance of peristalsis in a case of suspected intestinal obstruction, the occurrence of a high degree of leukocytosis without evidence of peritonitis and the development of shock when all other evidence points toward partial obstruction. The treatment for all types of the disease should be the same because the effect on the bowel is the same and the ischemia usually progresses to infarction. Radical resection of the bowel is essential when gangrene has developed. Anticoagulant therapy may prevent mesenteric vascular occlusion and may be of value in postoperative treatment, but cannot be recommended as definitive treatment.

New England Journal of Medicine, Boston

239:693-728 (Nov. 4) 1948

*Acute Renal Insufficiency Due to Lower-Nephron Nephrosis. M. B. Strauss.—p. 693.
*Dicumarol Therapy in Congestive Heart Failure. J. H. Wishart and C. B. Chapman.—p. 701.
Closed-Loop Obstruction of Ascending Colon, with Incomplete Descent of Cecum, Simulating Acute Cholecystitis. E. A. Gastron and M. E. Costin.—p. 705.
Bacterial Endocarditis Following Urethral Manipulation: Report of 2 Cases. J. K. Meneely Jr.—p. 708.
Sarcoidosis. D. G. Freiman.—p. 709.
Endocarditis, Acute Bacterial (Staph. aureus), Mitral and Aortic Valves, Healing. Acute Glomerulonephritis.—p. 716.
Adenocarcinoma of Pancreas, with Metastases. Perforation of Metastatic Carcinoma of Ileum Forming Pelvic Abscess. Acute Generalized Peritonitis.—p. 720.

Acute Renal Insufficiency Due to Lower Nephron Nephrosis.—Acute renal insufficiency due to the lower nephron nephrosis or hemoglobinuric nephrosis occurs in association with intravascular hemolysis associated with transfusion reactions, blackwater fever, sensitivity to quinine and transurethral prostatectomy, as well as in the crush syndrome, nontraumatic muscle ischemia, electrical injury to muscle, heat stroke, uteroplacental damage, alkalosis from excessive vomiting, thermal burns, sulfonamide sensitivity and from various poisons, particularly carbon tetrachloride. Strauss presents data pertinent to this syndrome and 7 case histories. There is evidence that neither nitrogen retention nor acidosis is responsible for the usual fatal outcome. Fatal cases of lower nephron nephrosis often exhibit generalized and pulmonary edema at necropsy. In the absence of pulmonary edema potassium intoxication may lead to a fatal outcome. Man, unlike small animals, may survive without renal function for four or more weeks, if excessive quantities of fluids are not administered parenterally. The tubular lesion is often reparable, with spontaneous diuresis to be expected within three weeks, if the patient can be kept alive this long. Many treatments proposed for this condition fail to speed the appearance of spontaneous diuresis. Strauss outlines a regimen which consists essentially in the replacement of water loss and in the furnishing of 100 Gm. of dextrose daily. This may, in many cases, permit the patient to survive long enough to have spontaneous recovery.

Dicumarol® in Congestive Heart Failure.—Wishart and Chapman believe that thrombosis and embolism are serious threats to the life of the decompensated cardiac patient. The authors employed dicumarol® in 61 patients with congestive heart failure in order to decrease the incidence of embolic phenomena. Previously published reports indicate that in a group of cardiac patients comparable to these one may expect embolic phenomena in the form of infarcts of the lungs in at least 22 per cent. In this series, the incidence of such lesions, during the period when dicumarol® therapy was effective, was 6.5 per cent. There were no deaths attributable with certainty to massive pulmonary embolism, and only 1 death that might conceivably have been due to such an accident. On the basis of these results, it is probable that dicumarol® therapy gives protection from thrombosis and embolism to the cardiac patient when he needs it most—when he is in congestive failure.

New Orleans Medical and Surgical Journal

101:199-248 (Nov.) 1948

Etiology of Nephritis. J. M. Hayman Jr.—p. 199.
Pathologic Physiology of Chronic Nephritis. J. M. Hayman Jr.—p. 203.
Treatment of Anuria. T. Findley.—p. 206.
The Practitioner and Diagnosis and Treatment of Headache. W. W. Morrison.—p. 210.
Present Status of Fenestration Operation for Otosclerosis. W. W. Morrison.—p. 222.
Removal of Auricular Appendage and Its Possible Therapeutic Use: Preliminary Report. W. J. Burdette.—p. 228.

New York State Journal of Medicine, New York

48:2319-2430 (Nov. 1) 1948

*Outlook for Patients Admitted to Mental Hospital After Age of Sixty. H. E. Clow.—p. 2357.
Schizencephalies with Hydrocephalus: Clinical Diagnosis of Severe Cerebral Agenesis. W. F. Beswick.—p. 2364.
Spinal Epidural Infection. E. W. Corradini and E. J. Browder. —p. 2367.
Practical Aspects of Cerebral Vascular Accidents. H. H. Merritt. —p. 2371.
Function of Child Guidance Clinic in Children's Hospital. S. Little. —p. 2379.
Scalenus Anticus Syndrome. B. D. Judovich.—p. 2382.
Electronarcosis in Psychiatric Therapy. B. L. Pacella.—p. 2387.
Evaluation of Hydryllin (Diphenhydramine and Aminophyllin) in Symptomatic Treatment of Allergy. H. Markow, S. Bloom and H. Leibowitz.—p. 2390.
Management of Anuria in Acute Mercurial Intoxication. A. P. Fishman, I. G. Kroop, H. E. Leiter and A. Hyman.—p. 2393.
Acute Urinary Infections in Infants and Children. M. F. Campbell. —p. 2397.

Outlook for Elderly Mental Patients.—According to Clow it is frequently assumed that in patients in whom mental disease develops or who have recurrences of such diseases after the age of 60 the prospects of recovery are poor. This question was investigated in a group of 365 such persons consecutively admitted to a New York Hospital from 1936 to 1946. Nearly two thirds had functional reactions, which included the involutional psychoses which represented typical agitated and paranoid depressions arising in rigid personalities in response to changes in the life situation. In the remaining 35.1 per cent the usual mental and physical evidences of psychosis associated with organic impairment of the brain were present. At the time of leaving the hospital the group as a whole showed 24.1 per cent to have recovered, 19.7 per cent to be much improved, 20.3 per cent improved, 21.4 per cent unimproved and 14.5 per cent to have died in the hospital. Of the 33 patients with senile psychosis, none recovered. Of the patients with psychosis with cerebral arteriosclerosis, however, 15, or 19.7 per cent, showed

substantial improvement with the ability to adjust adequately at home. Of 4 patients with organic delirium due to drugs, all recovered. In the group of 111 patients with manic-depressive disorders, 43 per cent recovered and 22 per cent improved. However, none of the 11 patients with well established dementia praecox showed great improvement. Good resources, which give security, and a favorable family situation were important factors in recovery. Age likewise seemed a factor, since those in the seventh decade showed better prospects of recovery than did those in the eighth or ninth decades.

Pediatrics, Springfield, Ill.

2:511-642 (Nov.) 1948

*Toxoplasmosis in Children. F. H. Adams, J. M. Adams, P. Kabler and Marian Cooney.—p. 511.
*Replacement Transfusion as Treatment for Erythroblastosis Fetalis. L. K. Diamond.—p. 520.
Acute Diarrhea in Infancy. A. Aristia and C. Garcés.—p. 525.
Recognition and Treatment of Increased Intracranial Pressure in Infancy and Childhood. B. Woodhall.—p. 533.
Cup Feeding of Newborn Infants. R. C. Fredeen.—p. 544.
Effects of Cup, Bottle and Breast Feeding on Oral Activites of Newborn Infants. H. V. Davis, R. R. Sears, H. C. Miller and A. J. Brodbeck.—p. 549.
Infectious Croup: III. Hemophilus Influenzae Type B Croup. E. F. Rabe.—p. 559.
Urinary Retention Due to Hematocolpometra: Report of Two Cases—One with Spontaneous Recovery. A. Bloxsom and N. Powell.—p. 567.
Immunologic and Biochemical Studies in Infants and Children with Special Reference to Rheumatic Fever. V. Electrophoretic Patterns in Blood Plasma and Serum in Normal Children. Rose Lubschez.—p. 570.
Id. VI. Electrophoretic Patterns of Blood Plasma and Serum in Rheumatic Children. May G. Wilson and Rose Lubschez.—p. 577.

Toxoplasmosis in Children.—Adams and his co-workers report 5 proved cases of toxoplasmosis in infants and 9 cases in which the clinical and laboratory evidence strongly suggested this diagnosis in infants and children. The most important observation in these patients has been the almost constant occurrence of internal hydrocephalus. It was present in patients with a normal or small head size as well as in macrocephalus. Convulsions were present in only 3 of the patients in sharp contrast to the incidence previously reported. Cerebral calcification occurred in 7 of the patients and chorioretinitis was present in 5. Five patients had neither of these cardinal manifestations, and 2 of these were patients in whom the toxoplasmic organism was found. This evidence strongly suggests that the diagnosis of toxoplasmosis should be suspected in the presence of internal hydrocephalus, particularly with spinal fluid changes such as elevated protein and pleocytosis. When the classical triad or tetrad of symptoms and signs of the disease is present and the result of the neutralization test is positive, the diagnosis of toxoplasmosis probably should be made, since isolation of the organism from the patient is difficult at the present time. One patient aged 2 months had a progressive jaundice from birth; it subsided gradually, but it can be the presenting complaint in a patient with congenital toxoplasmosis. Most of the patients had the onset of their illness in utero, at birth or shortly after birth. Nine of the patients are still alive, and except for 2, the chances of their living for many years are good. It seems likely that if the patient can survive the acute infection a chronic state can be reached that is compatible with life.

Replacement Transfusion in Erythroblastosis Fetalis.—Diamond treated 95 infants with erythroblastosis fetalis by replacement transfusions. The first 10 were given transfusions by various routes, two peripheral veins or the longitudinal sinus and a vein being used. The last 85 had been given transfusion only through the umbilical vein with a long bland plastic, polyethylene catheter and needle, two three-way valves being connected directly to the needle. By alternate maneuvers of first removing and next putting in blood 20 cc. at a time, the infant can gradually be exsanguinated and most of its blood volume replaced with relatively little trauma. About a pint of group O blood or group-specific blood of the Rh-negative type is used usually in replacing the infant's own blood volume. In the course of about one to one and a half hours this 500 cc. of blood replaces between 90 and 95 per cent of the infant's own circulating erythrocytes. Of the 95 infants, 20 belonged to families in which a previous child had died with erythroblastosis. In such families the statistical chance of a subsequent infant's survival is less than 10 per cent, and yet of these 20, 14 infants (70 per cent) survived and are completely well without residual damage. Two died and 4 lived but showed evidence of kernicterus later. Of the 85 infants treated by umbilical vein transfusion 65 are now living and well and show no evidence of residual damage over a period of three months, some of them right up to fifteen months. Seven patients died, but not of erythroblastosis. This mode of treatment has the advantage of ease and greater safety, and an added advantage of the earlier discharge of the patient from the hospital in seven or eight days, rather than in two to three weeks.

Pennsylvania Medical Journal, Harrisburg

52:89-184 (Nov.) 1948

Present-Day Concept of Treatment of Thrombosis and Embolism. A. W. Allen.—p. 113.
Physician, Heal Thyself! R. C. Hutchison.—p. 120.
Studies on Rh Hapten. Bettina B. Carter.—p. 124.
Social and Economic Aspects of Practice of Medicine. T. R. Fetter.—p. 128.
Urethrograms and Cystograms in Diagnosis of Lower Urinary Tract Disease. R. B. Roth.—p. 130.
Abused Diagnosis of Sinusitis. C. C. Fox.—p. 136.
Evaluation of Newer Vasodilators in Peripheral Vascular Disorders. D. W. Kramer.—p. 140.

Philippine Medical Association Journal, Manila

24:487-588 (Sept.) 1948

History of Aviation Medicine. P. G. Potenciano.—p. 487.
Schistosomiasis Reconnaissance in Northwestern Mindanao. T. P. Pesigan.—p. 495.
Choroidal Metastatic Carcinoma Following a Primary Growth in Breast—with Clinical and Pathologic Observations. M. G. Tan.—p. 507.
Strong Antihemorrhagic Property of Hecabepterin, The Yellow Pigment in the Philippine Butterfly Terias Hecabe Linnaeus. E. Y. Garcia.—p. 515.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

69:1-190 (Oct.) 1948. **Partial Index**

*Effect of Feeding Moderate Levels of Commercially Agenized Flour to Dogs. G. W. Newell, S. N. Gershoff, T. C. Erickson and others.—p. 1.
Simple Intestinal Obstruction: Prolongation of Life for 45 Days with Parenteral Alimentation. P. Nemir Jr., H. R. Hawthorne and Burnetta L. Lecrone.—p. 14.
Histologic Evidence for Synthesis of Protein in Lymphocytes Following Parenteral Injection of Antigen. T. N. Harris and Susanna Harris.—p. 18.
Viscosity Studies of Erythrocytes from Persons with Sickle Cell Disease. W. M. McCord, W. H. Kelley, P. K. Switzer and F. B. Culp.—p. 19.
Isometric Relaxation Period of Left Ventricle in Normal Subjects and Patients with Mitral Stenosis. A. A. Luisada, F. J. Romano and J. M. Torre.—p. 23.
Complement Fixation in Human Sera Following Murine Typhus. E. R. Rickard.—p. 31.
Strains of Virus of Foot-and-Mouth Disease Recovered from Outbreaks in Mexico. Vaccination Experiments. W. M. Henderson, I. A. Galloway and J. B. Brooksby.—p. 77.
*Effect of Rutin on Dicoumarolism. W. G. Clark.—p. 97.
*Isolation of Mumps Virus from Blood of Patient. L. Kilham.—p. 99.
Production of Hemagglutinin by Mumps and Influenza A Viruses in Suspended Cell Tissue Cultures. T. H. Weller and J. F. Enders.—p. 124.
Effect of Aminophyllin on Coagulation of Human Blood. D. W. Blood and M. C. Patterson.—p. 130.
Propagation of Rabbit Fibroma Virus in Embryonated Egg. Margaret H. D. Smith.—p. 136.

Feeding Agenized® Flour to Dogs.—Newell and his co-workers placed a series of dogs on a diet which contained an amount of agenized® flour approximately equal to that used in the average American diet. The results demonstrated that dogs can be fed a ration containing moderate levels (30 per cent) of commercially agenized® flour for long periods (twelve to fourteen and a half months) without having running fits or electroencephalographic abnormalities.

Effect of Rutin on Dicumarolism.—Under the experimental conditions employed by Clark, rutin does not antagonize dicumarolism in rats. Presumably the defect in the vessel walls or their supporting structures which leads to hemorrhage in dicumarolism differs from that leading to the various hemor-

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rhagic conditions which rutin and related "vitamin P"-like substances purportedly benefit. These facts, however, need not necessarily preclude the simultaneous use of dicumarol® and "vitamin P" for their separate effects, as illustrated by a report on the favorable effects of rutin and dicumarol® in various retinal vascular disorders.

Isolation of Mumps Virus.—Kilham reports a boy, aged 3, in whom a clinical diagnosis of mumps was made when the left parotid was found firm, swollen and tender. Several days later swelling appeared in the parotid on the right side. Blood was drawn the day parotitis was first observed and 5 cc. treated with sodium citrate. Because whole citrated blood had resulted in a high mortality in previous egg inoculations, the plasma was separated from the red blood cells after natural sedimentation, and the two fractions stored in solid carbon dioxide. Two weeks later 12 eggs were inoculated intra-amniotically with 0.1 cc. of the plasma, and 5 survived for harvesting. The red blood cell fraction was diluted 1:2 in infusion broth, and the mixture in 0.2 cc. amounts inoculated into 12 eggs intra-amniotically. Only 3 embryos survived. In the third egg passage, virus was detected in 4 of 8 amniotic fluids, and in almost all eggs of two subsequent passages. The cerebrospinal fluid inoculated into eggs in 0.2 cc. amounts yielded no virus in three passages, a not unexpected result, since the patient had no symptoms suggesting meningoencephalitis. Inhibition of hemagglutination and complement fixation tests identified the agent as the mumps virus.

Psychosomatic Medicine, Baltimore

10:253-308 (Sept.-Oct.) 1948

*Treatment of Psychoses with Bilateral Ablation of Focal Area of Frontal Cortex. R. G. Heath and J. L. Pool.—p. 254.
Criteria for Evaluation of Group Therapy. E. M. L. Burchard, J. J. Michaels and B. Kotkov.—p. 257.
Psychosomatic Studies of Children with Allergic Manifestations. I. Maternal Rejections: Study of Sixty-Three Cases. H. Miller and Dorothy W. Baruch.—p. 275.
Significance of "Emotional Climate" in Early Feeding Difficulties. Beata Rank, Marian C. Putnam and G. Rochlin.—p. 279.
Approach to Study of Diabetic. Therese Benedek.—p. 284.
Role of Emotion in Onset and Course of Diabetes. G. E. Daniels.—p. 288.
Objectives of Modern Diabetic Care. E. Tolstoi.—p. 291.

Bilateral Ablation of Focal Area of Frontal Cortex.—Heath and Pool performed bilateral extirpation of different areas and combinations of areas of frontal cortex on 24 patients with chronic psychosis who had not responded to conventional therapy, including shock, at New Jersey State Hospital in Greystone Park. In all of the patients who showed definite improvement as a result of operation, Brodmann's areas 9 and/or 10 were included in the removal. In addition to the Greystone patients 23 private patients have been operated on. In these too, conventional treatment, including shock, had failed. All in this group had removals confined to the region of areas 9 and/or 10. Eight have been followed less than three months. Of the remaining 15, all but 2 had been institutionalized before operation for periods up to twenty-eight years; of this group 10 are now able to function at old capacity, 3 are able to be out of the institution with supervision and 2 remain institutionalized. Beneficial effects resulting from removal of areas 9 and/or 10 are constantly in the sphere of affective response, so that tensions do not accumulate, thereby making regressive reparative behavior unnecessary. Patients in whom more than two large Brodmann areas or several small cortical areas are removed will show signs of deterioration in social behavior, as occurred in the authors' case of lobotomy in which large amounts of cortex were undercut. The operation as now performed (topectomy) consists of removal of the posterior part of area 10 and the anterior part of area 9. Improvement appears to be related to site removed rather than differences in cytoarchitecture. Patients whose overt psychotic symptoms are removed by this operation show essentially the same basic personality traits as were present before the illness began. In persons with chronic psychosis affect becomes divorced from ideation to varying degrees. This seldom occurs except in cases of schizophrenia and manic psychosis. As this dissociation increases, the prognosis with operation becomes less favorable.

Review of Gastroenterology, New York

15:805-866 (Nov.) 1948

Functional Innervation of Pancreas. J. E. Thomas.—p. 813.
Chronic Benign Gastric Ulcer on Greater Curvature. S. L. Cash and F. A. Marshall.—p. 821.
*Treatment of Gastric and Duodenal Ulcers with Anion Exchange Resins. J. Weiss.—p. 826.
Anatomic Basis for Study of Splanchnoptosis (Visceralptosis): Coordinated Action of Respiratory Muscles—(Diaphragma, Pneuma, etc.): Preparatory Positions and Movements. Agnes C. Vietor.—p. 832.
Test for Common Duct Stone in Postcholecystectomy Syndrome. H. M. Robinson.—p. 838.
The Mis-Treatment of Hernia. A. R. Koontz.—p. 840.

Anion Exchange Resins in Treatment of Peptic Ulcers.—Impressed by laboratory and clinical reports indicating that certain of the resins take up hydrochloric acid, and looking for an antacid which would be effective without undesirable side reactions, Weiss decided to use the anion exchange resin (200 mesh) in a series of patients in whom duodenal or gastric ulcers had been demonstrated by means of roentgen rays. Forty of 44 patients had symptomatic relief in from one to eight days. Three patients with gastric ulcers had no response. One patient with a cancer had no response. The average time of roentgenologic regression of the ulcer crater in 39 successful cases was ten to fourteen days. Neither diarrhea nor constipation was observed during or after treatment with the resin.

Southern Medical Journal, Birmingham, Ala.

41:965-1060 (Nov.) 1948. **Partial Index**

Development of X-Ray Diagnosis in Orthopedic Surgery. W. G. Stuck.—p. 965.
Significance of Specific Estrogenic, Progestogenic and Androgenic Smears in Menstrual Disorders and in Pregnancy. H. E. Nieburgs and R. B. Greenblatt.—p. 972.
Comparison of Intravenous Oxytocin and Ergonovine in Control of Hemorrhage Attending Delivery. Wm. H. Grimes Jr., R. A. Bartholomew, E. D. Colvin and J. S. Fish.—p. 980.
Local Recurrence in Breast Cancer. W. V. Hare.—p. 988.
Progressive Muscular Dystrophy: Case Report. S. Burrus Jr.—p. 991.
Granuloma Inguinale: Report of Three Cases Treated with Massive Doses of Streptomycin. R. G. Thompson, C. B. White and H. Hailey.—p. 994.
*Further Concepts in the Treatment of Rocky Mountain Spotted Fever with Para-Aminobenzoic Acid. T. E. Woodward and W. T. Raby.—p. 997.
Practical Consideration of Tropical Diseases Important to the General Practitioner and Health Officer. E. G. McGavran.—p. 1003.
Some Unofficial Observations at Dachau. H. Davis.—p. 1007.
Analysis of Impact of War Experience on Surgical Practice. C. B. Odom.—p. 1010.
*Treatment of Syphilitic Interstitial Keratitis: Outline of Method of Treatment Suitable for Rapid Treatment Center or Small Hospital. W. B. Forsyth.—p. 1015.
Actinomycosis: Report of Six Cases Treated with Penicillin and Sulfadiazine. E. F. Chanton, W. J. Hollis and M. D. Hargrove.—p. 1022.
Value of Urinary Sodium Chloride Determinations in Acute Salt Depletion. C. W. Morse.—p. 1026.
Treatment of Subacute Combined Degeneration of Spinal Cord with Vitamin B12. T. D. Spies, R. E. Stone, S. Kartus and T. Aramburu.—p. 1030.
Treatment of Bleeding Peptic Ulcer. E. F. Lewison.—p. 1031.
Treatment of Inflammatory Dermatoses with Oral Bismuth (Sodium Bismuth Triglycollamate). J. K. Howles.—p. 1033.
Use of Steroid and Gonadotropic Hormones in Hydroa Vacciniforme. E. S. Lain, J. H. Lamb, Corinne Keaty and A. Hellbaum.—p. 1041.
Psychosurgery for Pain. W. Freeman and J. W. Watts.—p. 1045.
Bronchiectasis: Modern Treatment. W. B. Allan.—p. 1049.

Treatment of Rocky Mountain Spotted Fever.—Woodward and Raby treated 17 patients, 12 children and 5 adults, with Rocky Mountain spotted fever by administration of para-aminobenzoic acid. An oral dose of 8 Gm. of the sodium salt in tablet form was given to the adults initially with subsequent two-hourly doses of 3 Gm. For children the dosage was generally two thirds of that of the adults. A priming dose was administered to severely ill patients when a prompt high blood level was desired by intravenous route with a concurrent dose by mouth, the schedule thereafter being by mouth. A two hour schedule by mouth was routine, and when the determined levels of para-aminobenzoic acid in the blood were below 10 mg. per hundred cubic centimeters, the level sufficient to sterilize the blood, supplemental drug was administered intravenously. The optimum effective blood level is 40 mg. per hundred cubic centimeters, although no untoward reaction resulted from higher levels over short periods of time. The average duration of the entire febrile course was 6.8 days; the average duration of fever

after the administration of the drug was 3 days and the average duration of hospitalization 11.9 days. Treatment with para-aminobenzoic acid was terminated in 9 patients after the temperature was restored to normal. There were no subsequent relapses. This procedure is not recommended if the improved clinical condition of the patient does not coincide with the drop in temperature. Para-aminobenzoic acid exerts a direct effect on the circulating rickettsiae. The bedside observation of a greatly shortened rash in 4 cases strongly points to prompt intracellular inhibition of rickettsial growth.

Syphilitic Interstitial Keratitis.—Forsyth treated 70 patients with syphilitic interstitial keratitis, 56 of whom had active interstitial keratitis, with typhoid-vaccine-induced fever and penicillin. This treatment is suitable for use in a small private hospital or rapid treatment center. All patients were treated on an ambulatory basis. The results of experiments with various-sized initial doses of killed organisms showed that the average number of hours of fever from the first typhoid vaccine injection were between four and five, if the dose was 200,000 to 300,000 killed organisms per pound of body weight. Although up to 25,000,000,000 organisms (25 cc.) were given, there was little increase in patient response to doses in excess of 12,000,000,000 organisms and, unlike smaller doses, the 12,000,000,000 organism dose may be repeated two or more times, giving an adequate febrile response on each administration. All patients weighing over 65 pounds (29.5 Kg.) were given penicillin in doses of 40,000 units each two hours for a total of eighty-five injections over a period of a week. All patients under 65 pounds of weight received 250,000 units of penicillin per 5 pounds (2.3 Kg.) of body weight in sixty injections. Forty-one of the 70 patients returned for follow-up examinations, representing 46 eyes involved with active interstitial keratitis and 20 eyes involved with inactive interstitial keratitis at the time of the treatment. Eighty-eight and three-tenths per cent useful vision was restored in 38 of these patients who had had determinations of visual acuity. The patients who had been treated within two months of the onset of their interstitial keratitis showed a 90.5 per cent return of useful vision. Results of penicillin and typhoid-vaccine-fever therapy in the treatment of interstitial keratitis are as good as the best results from any other form of therapy. Penicillin has the further advantages of a lowered incidence of toxic reactions and a shorter course of treatment. When fever therapy is used in addition to penicillin in the treatment of interstitial keratitis resolution is more prompt than when penicillin alone is used.

Surgery, Gynecology and Obstetrics, Chicago

87:513-640 (Nov.) 1948

*Carcinoma of Stomach: Validity of Basing Prognosis on Borrmann Typing or Presence of Metastases. G. E. Moore, D. State, R. Hebbel and A. E. Treloar.—p. 513.

Five Year Survival Rate in Cases of Completely Obstructing Annular Carcinoma of Descending Colon and Sigmoid: Pathologic Study. D. F. Nickell and M. B. Dockerty.—p. 519.

Comedomastitis: Clinical and Pathological Study of Data in 172 Cases. G. I. Tice, M. B. Dockerty and S. W. Harrington.—p. 525.

Results of Treatment of Carcinoma of Ovary with Data on Age Incidence of This Disease. J. H. Marks and M. H. Wittenborg.—p. 541.

*Streptomycin in Surgery of Pulmonary Tuberculosis. J. D. Murphy. —p. 546.

Lumbosacral Articulation: Roentgenologic and Clinical Study with Special Reference to Narrow Disk and Lower Lumbar Displacement. E. A. Brav, H. A. Molter and W. J. Newcomb.—p. 549.

*Correlation of Neurologic, Orthopedic, and Roentgenographic Findings in Displaced Intervertebral Disks. F. C. Grant, G. Austin, Z. Friedenberg and A. Hansen.—p. 561.

Management of Knee Injuries Incurred in College Football. T. B. Quigley.—p. 569.

Evaluation of Sulfathalidine and Streptomycin as Adjuncts in Preparing Large Bowel for Surgery. R. J. Rowe, E. H. Spaulding, Dorothy S. Madajewski and H. E. Bacon.—p. 576.

Tumors of Vertebral Column. J. Puig Guri.—p. 583.

Cervicomediastinal and Mediastinal Cystic Hygromas. R. E. Gross and E. S. Hurwitt.—p. 599.

Urethral Caruncle. J. K. Palmer, J. L. Emmett and J. R. McDonald. —p. 611.

Borrmann Typing in Carcinoma of Stomach.—Moore and his associates direct attention to Schindler's belief that the prognosis and perhaps the therapeutic procedure for carcinoma of the stomach may be based on the Borrmann typing of tumors. Borrmann classified gastric carcinomas as: I, sharply demarcated polypoid carcinomas; II, sharply demarcated ulcerated carcinomas; III, partly infiltrating carcinomas, and IV, diffusely infiltrating carcinomas. On the basis of an analysis of 239 cases Schindler questioned the advisability of resection of infiltrative tumors. Since this challenges the belief that as many carcinomas as possible should be resected, the authors decided to review the records of patients treated at their clinic. The diagnosis of gastric carcinoma was made in 342 patients, and in 177 of these gastric resection was done. They conclude that the presence or absence of demonstrable metastases in regional nodes among patients subjected to gastric resection for carcinoma has a greater prognostic value than has the classification according to the Borrmann type. Borrmann's typing affects the prognosis to the extent that the limited tumors provide a proportionately large number of patients free of matastases while the infiltrating tumors are more likely to have metastasized. The presence or absence of metastases cannot be accurately determined preoperatively and no patient should be denied operation because of the type of tumor which he may be determined to have.

Streptomycin in Surgery of Pulmonary Tuberculosis.—Murphy says that the Army and the Navy have been conducting a cooperative study of the bacteriostatic action of streptomycin on the tubercle bacillus. The surgical divisions of the forty-seven participating study units were asked to determine whether streptomycin provides protection against postoperative spread or reactivations and against the development of empyema in patients subjected to thoracoplasty and pulmonary resection for tuberculosis. Every alternate patient subjected to thoracoplasty and every patient undergoing lobectomy or pneumonectomy was given streptomycin as a protective agent. In the beginning 2 Gm. of streptomycin per day were given by intramuscular injection, divided into five doses. On Oct. 15, 1947, the standard daily dose was reduced to 1 Gm., divided into two doses of 0.5 Gm. each at twelve hour intervals. It was desired to avoid, as far as possible, the development of resistance to the drug. Under both regimens the drug was administered for one week before and two weeks after each operation. The results of study concerning the protective action of streptomycin in 1,347 thoracoplasty stages and 129 pulmonary resections for tuberculosis are presented. It was concluded that streptomycin should not be given to the routine thoracoplasty patient but should be reserved for the occasional borderline risk patient in whom the disease is more widespread and more exudative in character than is usually considered suitable for surgery. The use of streptomycin is mandatory, however, before as well as after pulmonary resection for tuberculosis.

Displaced Intervertebral Disks.—Grant and his associates made studies on 95 patients, who had been subjected to operations on intervertebral disks. Examination by members of the orthopedic and neurosurgical staffs was followed by anteroposterior and lateral roentgenograms of the lumbar portion of the spine and the pelvis. Neurologically, the patients were examined for sensory, motor and reflex changes. The lower limbs were checked for signs of atrophy or weakness and for the presence of pain on straight leg raising. Orthopedically, the patients were examined for scoliosis, restricted mobility, paravertebral spasm or pelvic tilt. All patients were questioned as to the presence of any residual back pain or sciatic pain. The patients were also asked concerning their personal opinion of the operation. Sixty per cent of these patients were regarded as cured and were able to pursue a normal day's work without back or sciatic pain. Eighty-seven per cent of these were fully satisfied with the results of the operation. Air myelograms, while helpful, were not as accurate as desired. Oil myelography, preferably with pantopaque® (ethyl iodophenylundecylate) as the contrast medium is the method of choice and should be routinely employed. Lost or diminished achilles reflexes do not often return, nor should a patient be allowed to believe that paralyses will invariably recover after successful removal of the offending mass. Fusion of the vertebral bodies or dense bridging occurred in 6 patients, all of whom are in the group of clinically well. This change will probably develop in more as time goes on. It seems unlikely that the presence of a significant quantity of residual opaque oil in the caudal sac has any influence on the clinical result.

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Surgery, St. Louis

24:755-916 (Nov.) 1948

*Cerebral Angiography in Diagnosis of Intracranial Hematomas. K. Kristiansen.—p. 755.
End Results in Treatment of Cancer of Stomach: Analysis of 795 Cases. G. T. Pack and G. McNeer.—p. 769.
Postcholecystectomy Symptoms Due to Cystic Duct Remnant. C. B. Morton II.—p. 779.
Vascular Thrombosis in Acute Appendicitis. J. H. Remington and J. R. McDonald.—p. 787.
Roentgen Diagnosis of Volvulus of Cecum. J. P. McGraw, A. J. Kremen and L. G. Rigler.—p. 793.
Surgical Management of Thoracic Duct Injuries: Experimental Study with Clinical Application. G. B. Hodge and H. Bridges.—p. 805.
*Effect of Carinamide with Heparin on Coagulation of Human Blood: Preliminary Report. H. D. Sirak, R. S. McCleery and C. P. Artz. —p. 811.
Anemia Following Resection of Intestine: Clinical and Experimental Observations. J. D. Martin Jr., R. L. Robertson and E. W. Dennis. —p. 819.
Effect of Absorbable Sponges on Infection: Experimental Study. A. F. Cipolla and J. K. Narat.—p. 828.
Complications of Imperforate Anus Repair. F. T. Wallace and E. M. Colvin.—p. 832.
Ganglion of Anterior Cruciate Ligament. J. Levine.—p. 836.
Congenital Atresia of Esophagus with Hypoplasia or Agenesis of Lower Segment. F. X. Byron.—p. 841.
Strangulating Diaphragmatic Hernia of Liver: Report of Case with Surgical Cure. S. A. Wolfson and A. Goldman.—p. 846.
Lipoma of the Thenar. W. M. Aldredge and B. Halpert.—p. 853.
Dilute Pentothal Drip Infusion. B. A. Greene and J. W. Pillion. —p. 855.
A New Laminectomy Retractor. A. F. Reed and H. D. Kirgis.—p. 860.
*Apoplexy of Gall Bladder. F. Christopher and J. L. Savage.—p. 864.

Cerebral Angiography in Intracranial Hematomas.—According to Kristiansen most head injuries belong to the cerebral concussion group. Dehydration by means of magnesium sulfate enemas is used both as a prevention against cerebral edema and as a treatment in patients in whom edema has developed. The symptoms in cases of cerebral edema are very similar to those of intracranial hematomas. The effect of dehydration in these patients is therefore of considerable diagnostic value. Intracranial hematomas are relatively infrequent lesions in patients with head injuries. In the series of cases observed by the author from 1937 to 1939, only 1.2 per cent of the patients presented extradural and 1.2 per cent subdural hematomas. A careful preoperative diagnosis of the nature and the site of the lesion is a prerequisite for an effective treatment. Clinically, the patient's state of consciousness is the main guide in determining whether there is to be operative intervention or not. Increasing drowsiness frequently combined with motor restlessness, stupor and finally coma, which does not recede during dehydration, present a clear indication for surgical intervention, but, before an operation can be undertaken, the nature of the intracranial lesion must be ascertained. For this percutaneous carotid angiography is found most useful. Over a period of several years, no serious complications have arisen from using this method in neurologic and neurosurgical diseases. The contrast agent is a 35 per cent solution of iodopyracet. The author presents case histories which show the different diagnostic problems presented by patients with head injuries during the first days after the accident. Without cerebral angiography the presence of the intracerebral clot will easily be overlooked. Among the cases reported by the author there were 3 in which there was a combination of a subdural hematoma and an intracerebral hematoma. The excellent result of operative treatment on this form of intracerebral hematomas is a temptation to apply similar therapy in suitable cases of ordinary brain hemorrhages or apoplexies.

Effect of Carinamide with Heparin on Coagulation.—Since carinamide (4-carboxyphenylmethanesulfonanilide) had been used to prolong and augment the blood level of penicillin, Sirak and his co-workers decided to investigate whether carinamide might have a similar effect on heparin. The 10 patients picked at random were in the preoperative phase and their illnesses did not contraindicate the administration of heparin. The authors found that heparin in saline solution, given intravenously one-half hour after a single dose of carinamide, causes a progressive enhancement of the effect of an equal dose of heparin administered on each successive day. In 8 of 10 patients, this enhancement reached a peak in approximately three days and is manifested by a two to ten fold increase in coagulation time response to heparin. This peak is followed by a gradual return to a normal response, two to three days later. Incomplete evidence suggests that this effect may be due to the formation of a new compound and not to carinamide blockage of the renal excretion of heparin. If results can be achieved with small doses of heparin the cost of heparin therapy will be greatly reduced.

Apoplexy of Gallbladder.—Christopher and Savage report the case of a woman, aged 46, who had hypertension and in whom there occurred a large hemorrhage into the noncalculous gallbladder. They point out that hemocholecyst is the term applied by Fiessinger to massive, nontraumatic gallbladder hemorrhage. They have employed the term "apoplexy of the gallbladder." In the case reported by them there was hypertension and absence of gallstones. It is thought likely that slight bleeding may occur frequently in diseased gallbladders. If traumatic cases are excluded, massive hemorrhage from the gallbladder is almost always associated with cholelithiasis. On review of the literature 28 such cases were found to have been reported. Massive hemorrhage from a noncalculous gallbladder is rare. In addition to the case herewith presented, only 2 cases have been reported, 1 by Schnyder concerning a man, aged 72, and 1 by Fiessinger concerning a boy aged 4½ years. Hypertension has been noted in only 1 other case of massive hemorrhage, that of Hudson and Johnson, but in their case cholelithiasis was present.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

56:565-604 (Nov.) 1948

New Incisions and Revised Technics in Peripheral Nerve Surgery. E. Seletz.—p. 565.
Surgical Problems in Diverticulitis of Colon. S. F. Herrmann.—p. 572.
*Early Results from Vagus Nerve Section in Treatment of Duodenal Ulcer: Report of 150 Cases. J. Weinberg and A. Kraus.—p. 577.
Discussion of Methods of Detection of Carcinoma of Uterus with Some Therapeutic Implications. J. M. Harris, L. Krohn and M. S. Priver. —p. 584.
Retained Abdominal Sponge. R. D. Forbes.—p. 588.
Anesthesia for Total Laryngectomy. A. C. Kirchhof and D. C. Boals. —p. 590.
Facilitation of Intestinal Anastomosis by Use of a Disintegrating Ring. D. N. Richards and R. L. Thomas.—p. 592.
Paraplegia Resulting from Lumbar Paravertebral Injection of Alcohol for Nerve Pain: Report of Case. P. Teng.—p. 594.
Homolateral Interstitial Pregnancy Following Salpingectomy. C. L. Buerger Jr. and B. B. Weinstein.—p. 596.

Vagotomy in Duodenal Ulcer.—Weinberg and Kraus performed vagotomy in 150 patients between the ages of 20 and 69 years with duodenal ulcer. The duration of symptoms was one to thirty years. The follow-up has extended from twelve to twenty months in 40 patients, from six to twelve months in 69 patients and from one to six months in the remaining 41 patients. Of the patients 146 have remained completely well during the period of observation. Three have persistence of ulcer symptoms, and 1 died as a result of postoperative pneumonitis. The occurrence of associated undesirable effects of vagotomy, including gastric retention, diarrhea, cardiospasm and a syndrome suggestive of hypoglycemia, is unpredictable. These side effects do not seriously weigh against the value of the operation. The advantages of the abdominal approach over the thoracic approach are so decisive that the latter method has been practically discontinued. Posterior gastrojejunostomy is now performed routinely with vagotomy to overcome the relatively frequent and unpleasant complication of prolonged gastric retention following vagotomy. Because there may be intermissions of many years between active phases of the ulcer diathesis, it is too early to predict the final outcome in the patients reported. The results thus far are superior to those experienced or seen reported with other methods of surgery over a similar period.

Yale Journal of Biology and Medicine, New Haven

21:1-112 (Oct.) 1948

Michael Servetus and the Discovery of Lesser Circulation. J. Trueta. —p. 1.
Method for Counting Blood Platelets in Small Animals. E. Adams. —p. 17.
Nature and Significance of Neutral Steroids in Human Urine in Normal and in Abnormal States: with Preliminary Consideration of Adrenal and Gonadal Steroids and Factors Which Influence Their Secretion and Biological Action. W. W. Engstrom.—p. 21.
Occurrence of Wolff-Parkinson-White Syndrome Concomitant with Acute Rheumatic Fever. J. K. Meneely Jr.—p. 87.
Differences in Resistance of Human Plasmas to Staphylocoagulase. M. Tager and Harriet B. Hales.—p. 91.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Industrial Medicine, London

5:175-244 (Oct.) 1948

British Tradition in Industrial Health. E. R. A. Merewether.—p. 175.
Early Scottish Essays in Industrial Health. T. Ferguson.—p. 180.
Victuals and Ventilation and Health and Efficiency of Seamen. F. P. Ellis.—p. 185.
Dust Sampling in Hematite Mine with Pneumoconiosis Research Unit Hand Pump. H. H. Watson.—p. 198.
*Evaluation of Skin Cleansers and Protective Creams for Workmen Exposed to Mineral Oil. C. N. D. Cruickshank.—p. 204.

Skin Cleansers and Protective Creams for Workmen Exposed to Mineral Oil.—Cruickshank points out that in many industrial processes the workman's skin is constantly exposed to mineral oils which are potentially harmful. Uncontaminated oils are invisible on the skin in small amounts, so that the effectiveness of their removal cannot be assessed by direct examination. This difficulty was overcome by utilizing the fact that most mineral oils produce a brilliant violet fluorescence when examined in ultraviolet light. The intensity of this fluorescence gives a measure of the amount of oil remaining and thus provides a means of comparing the efficiency of detergents. The efficacy of soap in various concentrations was first investigated. Soap powder is the most concentrated form of soap possible. Used alone this was unsatisfactory from a practical point of view in that the addition of water caused clumping and caking. This was avoided and the detergent properties of the soap greatly improved by using a mixture containing equal parts of wood flour and milled, dried soap powder. The wood flour, in addition to preventing caking, acts as a mild scrubber and provides an alternative surface to which the oil may become attached. The other cleansing agents examined had the defect that rinsing from the skin was difficult. Barrier creams were examined, but none gave satisfactory protection of the skin. The excessive removal of fat from the skin is discussed, and a method of investigating this problem is described.

British Journal of Tuberculosis, London

42:75-100 (Oct.) 1948

Recent Advances in Rehabilitating the Tuberculous. F. Heaf.—p. 75.
The Chick-Embryo in Sanatorium Practice. J. Cuthbert and G. G. Davidson.—p. 83.
Alveolar Cell Tumor of Lung: Report of Case. R. I. McCallum.—p. 90.

British Journal of Urology, London

20:109-160 (Sept.) 1948

Significance of Calcareous Tuberculous Glands in Abdomen in Relation to Urinary Tract. J. A. Ross.—p. 109.
Pathologically Displaced Upper Femoral Epiphysis as Foreign Body in Urinary Bladder. E. Sadek.—p. 114.
*Spontaneous Rupture of Urinary Bladder. R. A. R. Taylor.—p. 117.
Diphtheritic Cystitis and Urethritis Following Prostatectomy. G. Wolfsohn.—p. 121.

Spontaneous Rupture of Urinary Bladder.—Taylor reports the case of a miner, aged 49, who had sustained a severe compression fracture of the first lumbar vertebra. Complete retention of urine was treated by an indwelling catheter and lavage of the bladder twice daily. After about seven weeks he had an automatic bladder and his progress was satisfactory, but about four weeks later he complained of sudden severe abdominal pain in the hypogastric region, and vomited several times. On the basis of a provisional diagnosis of a perforated stercoral ulcer immediate laparotomy was advised. At operation, which was performed four and one-half hours after the sudden abdominal pain, inspection of the bladder revealed a small hole, of about the size of the lead in a lead pencil, surrounded by a dense area of induration. Since excision and resuturing were out of the question, the sigmoid colon was pulled down into the pelvis, and an appendix epiploica sutured over the perforation, and the sigmoid colon sutured over this to the bladder wall. The patient progressed favorably and again had an automatic bladder. In view of the small number of recorded cases, the mortality rate is difficult to assess; in cases in which the operation is within twenty-four hours after rupture, the mortality rate is usually given at 11 per cent; but, if after twenty-four hours, this figure rises to 55 per cent.

British Medical Journal, London

2:769-808 (Oct. 30) 1948

*Streptomycin Treatment of Pulmonary Tuberculosis, A Medical Research Council Investigation. G. Marshall and others.—p. 769.
Sudden Death Due to Ependymoma of Cerebello-Pontine Angle: Report of 2 Cases. N. E. France.—p. 782.
Skin Tests for Sensitivity to Liver. P. C. Reynell.—p. 784.
Hereditary Hemorrhagic Telangiectasia. C. P. Petch.—p. 785.
Intussusception in Adults Due to Carcinoma of Colon. R. A. C. Owen.—p. 786.

Streptomycin Treatment of Pulmonary Tuberculosis.—The investigation presented by Marshall and others was planned and directed by the Streptomycin in Tuberculosis Trials Committee of the British Medical Research Council. The 107 patients reviewed in this paper had acute progressive bilateral pulmonary tuberculosis unsuitable for collapse or any other type of treatment except rest in bed. Bed rest was the treatment given to 52 of them, while 55 patients were treated with bed rest plus streptomycin. Patients were assigned to one or the other group by random selection, and only after acceptance as suitable for the trial. The period of observation for each patient was six months. The patients treated with streptomycin were given daily 2 Gm. of streptomycin, which was administered in four intramuscular injections at intervals of six hours. There were no toxic effects that required interruption of treatment, but vestibular disturbances were common. At the end of six months 7 per cent of the patients treated with streptomycin and 27 per cent of those who were treated only by rest in bed had died. Roentgenologic examination revealed considerable improvement in 51 per cent of those treated with streptomycin and in only 8 per cent of those not so treated; for slight to moderate improvement the respective figures were 18 and 25 per cent. Apart from those who died, the percentages for deterioration were 18 and 34, respectively, for the streptomycin and control cases. Improvement in the patients treated with streptomycin was greatest during the first three months; after that many began to deteriorate. In most cases resistance to streptomycin emerged in the second month of treatment. It seems probable that resistance to streptomycin is responsible for much of the deterioration seen in patients treated with streptomycin after first improvement.

2:809-846 (Nov. 6) 1948

*Ethinyl Estradiol. T. N. A. Jeffcoate, Ursula M. Lister, Betty Hargreaves and H. Roberts.—p. 809.
*Ménière's Syndrome: Successful Treatment by Surgery on Sympathetic. E. R. G. Passe and J. S. Seymour.—p. 812.
"Rheumatoid Disease" with Joint and Pulmonary Manifestations. P. Ellman and R. E. Ball.—p. 816.
Cord Complications During Pregnancy and Labor. Joyce Morgan.—p. 820.
Hodgkin's Disease Confined to the Jejunum. G. L. Robinson.—p. 822.

Ethinyl Estradiol.—According to Jeffcoate and his associates ethinyl estradiol is an orally active estrogen first prepared by Inhoffen and Hohlweg in 1938. It is a derivative of alpha estradiol, the chemical structure of the two substances being similar. The authors decided to undertake a clinical trial of this substance mainly to assess its potency. Inhibition or suppression of lactation was chosen as the test object, as it seemed preferable to the relief of climacteric manifestations, where the interplay of psychogenic factors makes the assessment of results difficult. An attempt was made to compare the potency of ethinyl estradiol and diethylstilbestrol, both being administered orally. The results obtained in 66 women show that ethinyl estradiol is most efficient in preventing activity of the breasts. A total dose of 0.75 to 1.3 mg. spread over seven days gave good results in 21 out of 22 cases. When the total dose was reduced to 0.55 mg. the results were less satisfactory but rather better than those obtained with 35 mg. of diethylstilbestrol. Since it takes 40 to 50 mg. of diethylstilbestrol to produce good results in a high proportion of cases, it is reckoned that ethinyl estradiol is at least fifty times more active than diethylstilbestrol for the purpose of suppressing lactation. There is evidence that it is equally potent in producing other estrogenic effects; thus when it comes into general use there will be need to be caution with dosage, for otherwise ill effects such as menstrual disturbances, endometrial hyperplasia and postmenopausal bleeding, as well as toxic reactions such as nausea and vomiting, may frequently result.

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Sympathectomy in Ménière's Syndrome.—Passe and Seymour say that in 12 patients with Ménière's syndrome, in whom conservative treatment had failed, Passe performed stellectomy and division of the preganglionic fibers of the first and second thoracic nerves. In 2 cases the vertebral artery was stripped, while in 4 cases it was either ligated or divided after the adventitious coat had been removed. The vertigo attributable to the pertaining ear has been completely relieved in all except 1 of the cases. Whether the recurrence of vertigo in this case was due to hypersensitivity to epinephrine or epinephrine-like bodies following excision of the ganglion (for the patient was hard at work again and under considerable mental strain), or whether some sympathetic fibers to the ear may also originate on the opposite side to a greater or lesser extent in individual cases, is not known, but the fact that there has been improvement on the administration of ergotamine would suggest that the former view is the more likely of the two, in which case division of the preganglionic fibers together with stripping and ligation or division of the vertebral artery would be the operation of choice. This has now been done in more recent cases with the same beneficial effect on the vertigo, added to which it has the advantage of avoiding Horner's syndrome. The result on the tinnitus is apparently unpredictable, though on the whole it was reduced—in 3 cases it was completely relieved. The relief seems to be more pronounced with the pulsating type of tinnitus than with the continuous variety. Each patient suffered from concomitant nerve deafness, and in all except the two most recent cases there has been improvement of hearing by both air and bone conduction. If the nerve deafness is very severe it is beyond relief.

Journal of Obst. & Gynaec. of Brit. Empire, Manchester

55:573-724 (Oct.) 1948. **Partial Index**

Choice of Treatment of Individual Carcinomas of Cervix Based on Analysis of Serial Biopsies. A. Glucksmann and S. Way.—p. 573.
Vascular Pattern of Placenta and Its Development in Rat. R. P. Holmes and D. V. Davies.—p. 583.
Vaginal Bacterial Flora and Ovarian Dysfunction. Nancy Laughton.—p. 608.
External Version Under Anesthesia. J. H. Peel and S. G. Clayton.—p. 614.
Child-Bearing in Tuberculous Gravidae. J. P. McIntyre and W. C. Armstrong.—p. 624.
Cerebral Venous Thrombosis in Pregnancy (Report of Two Possible Cases). Jean McNairn.—p. 630.
Some Principles of Myomectomy. N. C. Louros.—p. 635.
Care of Eyes at Birth. Mary D. Taylor and R. M. Calman.—p. 642.
*Breast Hypertrophy and Pregnancy. G. Bankoff.—p. 646.

Breast Hypertrophy and Pregnancy.—During the last five years Bankoff performed plastic reduction of hypertrophied breasts in 6 women. Four presented histories of recurrent abortion between the third and fourth month of pregnancy. All 4 patients had been under the constant supervision of a gynecologist and had undergone all necessary precautionary treatment, particularly avoiding all mental and physical strain. In spite of this, uterine contractions and hemorrhage invariably occurred after the third month of pregnancy, resulting in abortion. The 2 other women were sterile. Both had been married five years; 1 reported an occasional delay in her menstrual periods, followed by an excessive loss of blood, which pointed to a glandular disturbance if not to an early abortion. The surprising results of surgical intervention were that each patient became pregnant after the plastic reduction of the mammary glands. Five completed normal pregnancy. The last, on whom the operation was performed six months ago, is now in the fourth month of pregnancy, and there are no signs of threatening abortion. The author believes that the most feasible explanation of the connection between hypertrophy of the breasts and habitual abortion and sterility is the action of the mammary gland hormones on the pregnant uterus. It would seem that an enormous breast produces an abnormal quantity of hormone, which by the fourth month reaches saturation, thus stimulating the fibers of the myometrium and causing them to contract. This hormonal saturation in the patient with normal breasts is reached only in the ninth month of pregnancy. Further research is needed on this problem.

Lancet, London

2:675-714 (Oct. 30) 1948

Treatment of Thyrotoxicosis: Review of 350 Cases. C. Robertson.—p. 675.
Meningococcosis: A Protean Disease. H. S. Banks.—p. 677.
*Infection Through Soaked Dressings. L. Colebrook.—p. 682.
Method of Testing Analgesics in Man. A. J. H. Hewer and C. A. Keele.—p. 683.
Nebulized Penicillin and Postoperative Pulmonary Complications. E. J. Holborow and E. A. Spriggs.—p. 688.
Tuberculous Mastoiditis Treated with Streptomycin: Report of Case. O. D. Fisher and E. A. Malkin.—p. 689.

Infection Through Soaked Dressings.—Colebrook investigated the possibility that wound pathogens can readily grow through an intact dressing when it becomes saturated with exudates. A model wound was constructed and covered with the usual bandages. After repeated instillation of sterile serous fluid into the wound till the outer bandage was just moist, Pseudomonas pyocyanea or other wound pathogens were brought into contact with the outer bandage and the whole was incubated. Motile organisms such as Ps. pyocyanea and Proteus invariably passed through to the "wound" within a few hours; hemolytic streptococci and staphylococci passed through a little more slowly. It is suggested that some of the hospital cross infections of burns and scalds, which frequently weep copiously during the first few days, and probably also of other open wounds whose dressings become soaked, may arise in this way. A sheet of cellophane inserted in the dressing prevents the ingrowth of organisms, but is not the ideal barrier. A flexible and strong plastic film which is pervious to water vapor but impervious to bacteria is under trial.

2:715-754 (Nov. 6) 1948

Vocation of Medicine. L. Horder.—p. 715.
*Thrombo-Angiitis Obliterans: Results of Sympathectomy and Prognosis. J. B. Kinmonth.—p. 717.
Ovulation and Menstrual Cycle. F. Davies.—p. 720.
Thyroidectomy with Block Dissection of Neck for Carcinoma of Thyroid Gland. Marcel Dargent.—p. 721.
Penetration of Cervical Mucus by Spermatozoa: Method of Investigation. Clare Harvey and Margaret H. Jackson.—p. 723.
*Parkinsonism Treated with Parpanit. W. F. Dunham and C. H. Edwards.—p. 724.
Familial Outbreak of Staphylococcal Infection of Bone and Joint. M. H. M. Harrison.—p. 727.
Cysticercosis Resembling Myopathy. R. J. McGill.—p. 728.
*Recurrence of Duodenal Ulcer Six Months After Adequate Vagotomy. C. G. Rob.—p. 730.

Thromboangiitis Obliterans.—In a review of cases of thromboangiitis obliterans Kinmonth was able to trace 77 patients in whom the diagnosis was confirmed and of whom records were complete; 8 patients could not be traced. Thromboangiitis obliterans, or Buerger's disease, is an obliterating disease of the arteries and veins, usually affecting segments of vessels in the extremities. It has been suggested that Buerger's disease can burn itself out completely, but, since it is known that it can manifest itself afresh after many years, it seems doubtful whether it can ever be said to be completely cured. The cases fell into three groups according to the initial site of the disease, for it sometimes started in large vessels, sometimes in the small vessels and sometimes in both simultaneously. The main criterion of differentiation was the presence or absence of the popliteal pulse. Prognosis varied in the three groups as regards alleviation of symptoms by sympathectomy and survival of the limb. The author found that the best results are to be expected when the smaller vessels are affected—i. e., when the popliteal pulse is palpable. Improvement was not observed in the mixed type. In some early cases of unilateral Buerger's disease bilateral sympathectomy was performed. In several of these the disease subsequently appeared in what had been the sound limb. Hence "prophylactic" sympathectomy did not give complete protection, though it possibly delayed the onset of symptoms.

Parpanit® in Parkinsonism.—Dunham and Edwards say that parpanit® (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate hydrochloride) is chemically closely related to the antispasmodics such as meperidine. In all, 25 patients with parkinsonism were carefully observed. Postencephalitic parkinsonism and paralysis agitans were about equally represented. All the patients had been receiving solanaceous drugs for more

than a year. The results of this investigation have confirmed the usefulness of parpanit® in parkinsonism. No striking differences in therapeutic activity were seen on replacing solanaceous drugs by parpanit.® Sometimes one drug, sometimes the other, seemed more beneficial. Where parpanit® was effective it was equally so whether it was added to or took the place of solanaceous drugs; when combined medication was being given, withdrawal of either produced only minor effects. The side effects of parpanit® were similar to those of the solanaceous drugs, but their relative frequency and intensity were different. Thus, whereas giddiness, a sensation of weakness, dryness of the mouth and blurring of vision developed with both, the first two predominated with parpanit® and the last two with solanaceous medication. Preference for one or the other treatment may be determined by the nature of the side effects.

Recurrence of Duodenal Ulcer After Vagotomy.—Rob reports the case of a man, aged 40, who by the standards of the insulin test had an adequate resection of the vagal nerve supply to his stomach, and no evidence of its regeneration. His ulcer symptoms have recurred after six months. The insulin test performed after the recurrence of symptoms produced no free hydrochloric acid and only a small amount of combined acid. At St. Thomas's Hospital vagotomy has been performed on 37 patients for peptic ulcer. The early results in 5 patients with secondary ulceration following gastrectomy or gastroenterostomy have been very good. In the other 32 patients with duodenal ulcer numerous initial complications have been noted, including temporary severe dysphagia, persistent diarrhea and eructation of foul gas, but in no other patients have the ulcer symptoms recurred, though in 4 the operation was by the standard of the insulin test incomplete.

New Zealand Medical Journal, Wellington

47:421-534 (Oct.) 1948. **Partial Index**

Death from Cold. K. F. M. Uttley.—p. 427.
Hypertrophy of Pyiorus in Adults. R. Orgias.—p. 457.
*Acute Porphyria: Case Report with Notes on Four Others. N. Little and H. Palmer.—p. 461.
Control of Eclamptic Convulsions by Pentothal Drip: Report of 2 Cases. D. P. Short.—p. 485.

Acute Porphyria.—Little and Palmer present the case of a woman, aged 32, who ten years previously had begun to have pains in the upper part of the abdomen and the loins. In 1942 an exploratory laparotomy was undertaken, adhesiolysis and removal of an ovarian cyst being performed. This procedure did not entirely relieve the symptoms. During the last five years she noticed a gradually increasing lassitude, and she began to suffer from pain in the upper lumbar region and in both groins. She became constipated. During her first pregnancy, after six years of marriage, all her pains increased and she vomited a great deal. Following the birth of her child she noticed that the attacks of pain began to be associated with vomiting, this state of affairs continuing until December, 1947, when all her symptoms suddenly became worse and she was admitted to hospital. Laparotomy was performed on the diagnosis of an intestinal obstruction. Some coils of distended small intestine were found, some adhesions were divided and a mass in the right broad ligament was observed and removed. This mass proved on subsequent examination to consist of a portion of ovarian tissue containing a follicular cyst, and fallopian tube. During the next four weeks she continued to complain of severe pain in her back and the upper part of the abdomen and her demeanor was characterized by tearful episodes and mental changes of a regressive character. Later she was admitted to a medical unit, where her condition steadily deteriorated and where a diagnosis of acute porphyria was made after porphobilinogen had been detected in the urine. As soon as the diagnosis had been established the family history was investigated; it appears reasonably certain that 2 cousins have suffered from a similar condition. Thus the hereditary nature of porphyria seems to be established. Notes on another case of porphyria are presented. The clinical history of the first patient suggests the possibility that her last illness may not have been the first porphyric episode, and the long prodromal period of lassitude with abdominal pain for ten years is of interest. Many cases reported in the literature have been diagnosed as acute abdominal crises or as hysteria. The critical urinary picture is apt to be missed if the nursing staff discard the daily urine specimens, as the pink color does not develop immediately but is most evident after forty-eight hours.

Proceedings of Royal Society of Medicine, London

41:653-734 (Oct.) 1948. **Partial Index**

The Hypothalamus and Water Metabolism. G. W. Harris.—p. 661.
The Hypothalamus and Urine Secretion. W. J. O'Connor.—p. 666.
Kostecka's Osteotomy for Correction of Prognathous Mandible. C. B. Henry.—p. 688.
Clinical Reactions and Injuries in Supervoltage Therapy. A. Jones. —p. 703.
Million-Volt X-Ray Therapy. I. G Williams.—p. 709.

Acta Dermato-Venereologica, Stockholm

28:413-522 (No. 5) 1948. **Partial Index**

Connection Between False Positive Syphilis Seroreactions and Coincident Disorders, Particularly Those of Respiratory Tract. P. Wiingaard. —p. 439.
Clinical Study of Toxic Effects of Bismuth Treatment in Syphilis. F. R. Curtz.—p. 446.
Case of Probable Transfusion Syphilis. M. Tottie.—p. 452.
*Taping (Adhesive Tape Treatment) of Leg Ulcers. O. Gilje.—p. 454.
Excretion of Biotin in Urine of Psoriasis Patients. T. Jensen.—p. 468.
Incidence of Arthroplasty in Ten-Year Series of Psoriasis Cases. C. G. Leczinsky.—p. 483.
Podophyllin Treatment of Venereal Warts. S. Emanuel and T. K. Varming.—p. 488.

Adhesive Tape Treatment of Leg Ulcer.—Gilje says that his chief object in advocating a revival of taping is that this procedure, as used at present, has yielded results superior to those of other types of treatment; it has proved beneficial in cases in which all other methods had failed. Favorable results largely depend on careful attention to certain technical details. Before taping is started the ulcer should be fairly clean, and for this reason it is advisable to precede taping by the use of wet dressings or dusting with boric acid, sulfathiazole or penicillin. In many instances taping can be commenced with benefit to the patient as soon as a portion of the ulcer is clean, the tape in those cases being affixed to the clean marginal zone, and wet dressings or dusting powders being continued in the remaining part of the ulcer. Strips are affixed with slight pressure to the skin on one side of the ulcer, placed immediately on the denuded surface and attached on the opposite side, the ulcer being somewhat contracted in this manipulation. The compression is most important when dealing with ambulant patients, where as a rule edema will be present. The quality of the tape is important; a good adhesive spread on tightly woven, strong cloth will produce the best results. The strips are then covered with a dry dressing. The tape may be changed every other or third day, according to the amount of exudation and the condition of the adjacent skin. If the discharge is considerable, there is no objection to changing the gauze dressing daily. Taping stimulates the formation of delicately grained, firm granulations. Excellent effects have been produced with this simple method.

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Acta Medica Scandinavica, Stockholm

131:503-612 (Oct. 30) 1948. **Partial Index**

Lipotropic Factors. C. H. Best.—p. 503.
Relation of Hypophysis to Carbohydrate and Basal Metabolism. Cured Diabetes Mellitus and Hypothyroidism in Acromegalia. (Survey and Case Record). H. Vermund.—p. 515.
Case of Perniciosiform Anemia in Child Nineteen Months Old. P. H. D. Waagstein.—p. 547.
Studies of Erythrocyte Counting. II. Technical-Physiological Errors. H. F. Lange and H. Palmer.—p. 555.
Comparative Studies of Effect of Some Vasodilators in Angina Pectoris. E. Nyman.—p. 565.
*Chrysotherapy and Its "Toxic" Reactions in Rheumatoid Arthritis. G. Edström.—p. 571.

Chrysotherapy in Rheumatoid Arthritis.—Edström determined the gold level in the plasma and urine of 33 patients with rheumatoid arthritis who were treated with gold salts causing "toxic" reactions in 8 of the patients. Six presented dermatitis, 1 had gastrointestinal symptoms and 1 transient albuminuria. No parallelism could be demonstrated between gold concentrations in the plasma and urine during gold therapy and these untoward reactions. There was no statistically significant difference between the patients with and without

"toxic" reactions. It is suggested that the reactions may be manifestations of hypersensitiveness of the organism to gold rather than of real toxic origin. Consequently, these reactions cannot be avoided. The reactions may occur after administration of small doses of gold, although they are usually less severe and of shorter duration than after the administration of large doses. A well balanced high vitamin diet is of importance for avoiding a high percentage of such reactions. Five patients with severe reactions to gold therapy were treated with BAL (2,3-dimercaptopropanol), 1.7 cc. (2.5 mg. per kilogram of body weight in 10 per cent solution in peanut oil, containing 20 per cent benzylbenzoate) every fourth hour, seven times by intramuscular route. These injections were followed by one to two injections daily for six to nine days. Results were satisfactory. The intramuscular injections of BAL were associated with local pain and infiltrations. No other symptoms of toxicity of BAL were observed. This treatment deserves further trial.

Acta Neurologica et Psychiatrica Belgica, Brussels

48:339-420 (Aug.) 1948

Systematized Nervous Diseases and Problems of Heredity (Concluded). L. van Bogaert.—p. 339.

*Surgical Treatment of Epilepsy with Focal Symptomatology. Critical Study of Results and Indications for Operation. L. Schwarz.—p. 380.

Surgical Treatment of Epilepsy.—Schwarz reports 25 cases of jacksonian epilepsy in 12 patients between the ages of 6 and 26 with encephalopathies of childhood, and in 13 patients between the ages of 21 and 48 who sustained trauma of the head, the majority of them being victims of World War II. These 25 patients were operated on in Paris by the neurosurgeon David. Four of the 12 juvenile patients made a complete recovery, 4 were improved and 4 were failures. In the adult group 4 made a complete recovery, 1 a near recovery, 5 were improved, there was 1 operative death and 1 nonoperative death, and 1 was a failure. Surgical intervention therefore was effective in 11 of the 25 patients, while partial or total failure resulted in 14. Effective surgical intervention was not limited to the motor region of the cerebral cortex but involved the precentral convolutions in 3 patients, the ascending parietal convolutions in 3 other patients, the area 8 in 1 patient, the posterior parietal region in 2 and the occipital zone in 1. At present the pathogenic basis for the surgical treatment of jacksonian epilepsy is not sufficient for envisaging a radical cure in all cases. Cases, the cause of which could be traced to childhood, and the "cryptogenic" cases offer a less favorable prognosis for surgical intervention than the post-traumatic cases with corticomeningeal cicatrization. A thorough clinical examination supported by a complete history may be sufficient for the right selection of patients to be operated on. The consideration of the latent period is of no value in patients with attacks whose cause can be traced back to childhood. The total length of time during which the patient had epileptic attacks is of great prognostic value, since surgical treatment seems to offer less chance for patients who have had attacks for more than two to three years. Irreversible character of the condition is indicated by increase in frequency of the attacks and by the tendency to repeated loss of consciousness. The coexistent deficiency of various cortical functions suggests a generalized involvement of the brain and is a serious contraindication to surgical intervention.

Anales Cáted. de Pat. y Clín. Tuberc., Buenos Aires

9:1-154 (June) 1947. **Partial Index**

*Syndrome of Bronchial Obstruction with Passage of Air. R. F. Vaccarezza and A. Soubrié.—p. 5.

*Experimental Stenosis of Pulmonary Artery. V. J. A. Alberti, O. C. Croxatto and A. Lanari.—p. 24.

Bronchial Obstruction with Circulation of Air.—Vaccarezza and Soubrié report 9 cases of a special type of bronchial obstruction in patients with pulmonary or bronchial tuberculosis. It is characterized by circulation of air through the stenosed segment of the large bronchi. Bronchospirometry showed that the functional value of the lung was insignificant or nil. Respiration was abolished in the corresponding pulmonary segment notwithstanding the fact that air was present in the lung parenchyma of that segment, as shown by roentgenograms. Obstruction of this type hinders the passage of air and stops aeration of the blood in the corresponding pulmonary segment, whereas it allows passage of air in sufficient amount to keep the lung expanded. Cases of atelectasis from bronchial obstruction with clear spots in the consolidated zone of the pulmonary parenchyma are due to the same mechanism as that which causes the syndrome described.

Experimental Stenosis of Pulmonary Artery. — The experiments were performed on dogs. The stem of the pulmonary artery was constricted to 50 per cent of its lumen and the experiment repeated by reoperation. The tension of the pulmonary circulation proximal to the stenosed segment of the pulmonary artery increased greatly, 27.36 mm. in systolic pressure immediately after ligation and a further increase of 32.28 mm. in the reoperation. Hypertension produced considerable dilatation of the right ventricle. There is an evident relationship between the degree of hypertension, the diameter of the myocardial fibers, the weight of the heart and the time of survival of the animal.

Ann. Chirurgiae et Gynaecologiae Fenniae, Helsinki

37:207-296 (No. 3) 1948

*On Treatment of Varicose Veins by Ligation of Saphenous Vein and Injection in Both Central and Peripheral Directions According to Ollonqvist's Method. V. Tuomikoski.—p. 207.

Meningiomas on Convexity of Skull. L. E. Laurent.—p. 229.

Occipitoposterior Position. Y. Montell.—p. 250.

Thrombosis in Patients with Tuberculosis. E. Tiitinen and E. Kallio-Koski.—p. 271.

Two Cases of Vaginal Atresia Observed in Duplex Anomalies of Genitals. K. Soiva.—p. 276.

Study of Results Obtained in Treatment of Fractures of Lower End of Radius in Insured Persons in Finland. O. Valtonen.—p. 287.

Treatment of Varicose Veins.—Tuomikoski treated 340 patients, 268 women (78.8 per cent) and 72 men (21.2 per cent), between the ages of 18 and 78 years, who had varicose veins, by ligation and injection in both central and peripheral directions. The great saphenous vein was ligated 5 to 10 cm. below the groin, and 1 or 2 cc. of 20 per cent sodium chloride solution was injected slowly in the central and 5 to 10 cc. quickly in the peripheral direction. The lesser saphenous vein was ligated 2 or 3 cm. below the knee joint, and 0.5 or 1 cc. of the solution injected in the central and 3 to 5 cc. in the peripheral direction. Postoperative injections were made in the beginning with sodium chloride or quinine-urethane, later exclusively with 10 per cent sodium morrhuate into empty veins. In 38 patients with indolent ulcer of the leg a supporting bandage was also used. Immediately after the injection pain was often felt in the limb down the foot, sometimes fairly severe, but subsiding in a few minutes. The patients were allowed to walk home and to resume their regular work. On these 340 patients a total of 494 ligations of the saphenous veins, 478 of the great and 16 of the lesser saphenous veins, were performed. In 57 per cent of the cases the dilatations were obstructed after ligation without postoperative injections. An average of 2.4 supplementary injections were required in 43 per cent of the cases. Periphlebitis occurred thirteen times (2.6 per cent), mild wound infection twice (0.4 per cent) and postoperative hemorrhage once (0.2 per cent). Necrosis of the skin occurred twice in connection with one postoperative injection of sodium chloride and one of quinine-urethane, but did not after injection of sodium morrhuate. There was no certain case of embolism. Follow-up could be done on 133 patients on whom a total of 204 ligations of the great saphenous vein and 6 of the lesser saphenous vein were performed. No signs of recurrence were noted in 90 limbs (43 per cent) while 120 limbs (57 per cent) did show recurrence. In 96 cases the great saphenous vein was entirely or partly recanalized and in 81 of these a deep communicating vein was observed to have incompetent valves. The immediate results obtained by this method are equally good and the end results are nearly as good as those obtained by high ligation and retrograde injection. The risk of embolism is probably smaller than in any other operative procedure. In all cases of incompetence of deep anastomoses the deep communicating veins have to be ligated as well.

Archives des Maladies du Coeur, Paris

41:385-480 (Sept.) 1948. **Partial Index**

Clinical and Experimental Research on Precordial Leads as Expression of Variations of Fields of Potential of Momentary Axes of Heart (Turning Dipoles or in Rectilineal Arrangement). Criticism of Present Concept of Doublets and of Conception of Extrinsic and Intrinsic Deflections. Remarks on Importance of Comparative Study of Axes of Standard Leads and Precordial Curves. P. Meyer and R. Herr.—p. 385.
Piezograms of Normal Persons and of Persons with Hypertension. E. Donzelot, A. Meyer-Heine, Giblin and Dessertenne.—p. 392.
Study of Auricular Complex of Electrocardiogram Under Considerable Amplification. A. Pruche.—p. 410.
Roentgenographic Pictures of Vascular Dystonia. L. Bazy, J. Huguier, H. Reboul and others.—p. 415.
Auricular Fibrillation Caused by Electrocution. C. Lian and A. Gerbaux. —p. 423.
*Remarks on Prognosis of Simple Persistent Patency of Ductus Arteriosus Based on 54 Patients not Operated on. J. J. Welti and G. Koerperich.—p. 428.

Persistent Patency of Ductus Arteriosus.—Welti and Koerperich report 54 patients, 17 men and 37 women, with persistent patency of ductus arteriosus. Thirteen were not heard from, 7 died and 34 have been followed up, 15 for less than five years, 8 for five to ten years, 5 for ten to fifteen years and 6 for fifteen to twenty years. Four of the 34 patients were aged less than 10 years, 7 were between the ages of 10 and 20, 10 between the ages of 20 and 30, 6 between the ages of 30 and 40, 4 between the ages of 40 and 50 and 3 aged 53. These 34 patients are leading a life near to normal, their hearts do not seem to become enlarged from one examination to the next, functional symptoms if present are mild and have not become aggravated with increasing age. Pregnancies are possible at least in a limited number. Of 14 women in the child bearing age period, 3 had 3, 2 had 2, and 4 had 1 child. The study of the 7 fatal cases showed that an accident may occur suddenly and death may result rapidly if not immediately. Infectious endarteritis seems to result less frequently in France than in the United States and England. Sixteen of the 34 patients have been studied in detail, and their condition apparently did not justify surgical intervention. Two of them, however, died suddenly. Although the statistics as a whole are less unfavorable the authors believe that surgical intervention for patent ductus arteriosus may have been omitted in France too often. Hesitation may be permissible but seems less warranted in the presence of definite dyspnea or decisive handicap in the general development of a young person.

Archivos de Pediatría del Uruguay, Montevideo

19:513-576 (Sept.) 1948. **Partial Index**

*Vulvovaginitis, a Frequent Complication of Measles. M. Schachter. —p. 533.

Vulvovaginitis with Abscess in Measles.—Schachter says that this condition is rare. He reports a case of acute vulvovaginitis with an abscess complicating benign measles. The condition is very painful. Treatment consisted of local warm compresses, irrigation with a very mild permanganated tepid water and administration of a sulfonamide drug in daily doses of 3 Gm., for two consecutive days. The abscess opened spontaneously and the lesion was healed in forty-eight hours.

Arch. Soc. Oftalmológica Hispano-Americana, Madrid

8:981-1056 (Oct.) 1948. **Partial Index**

*Rare Finding During Dacryocystitis. A. Alcala Lopez.—p. 1048.

Rare Finding During Dacryocystitis.—In a man 26 years of age a small tumor had developed at the age of 11 in the area of the right lacrimal duct. The tumor had disappeared and left as a sequel chronic suppurative dacryocystitis with a fistula. During a successful operation, which consisted of removal of the lacrimal sac, a canine tooth was found in the place previously occupied by the lacrimal sac. The tooth, the tissues about it and the fistula were removed. The author believes that the fistula corresponded to a dermoid cyst which contained the tooth. No similar finding in the lacrimal sac was previously reported in the literature.

Dermatologica, Basel

97:1-192 (No. 1 to 3) 1948. **Partial Index**

Effect of Podophyllin on Condylomas and Other Warts. F. Wyss-Chodat.—p. 1.
Substances with Antihistaminic Effect. W. Stalder.—p. 10.
Granulomatosis Disciformis Chronica et Progessiva (Atypical Tuberculosis). G. Miescher and M. Leder.—p. 25.
*Observations on Keratosis Follicularis "Epidemica" (Basel Disease). O. Schenker.—p. 35.
Experience with Vitamin D2 in Lupus. R. Lenggenhager.—p. 40.
*Etiology of Woodcutter's Eczema. F. Tenchio.—p. 72.

Keratosis Follicularis "Epidemica" (Basel Disease).—Schenker reports that in the fall of 1946 keratosis follicularis was observed in "epidemic" form in many patients in insane asylums in Switzerland. It developed in patients who were occupied in separating the tinfoil used in packing butter, cheese, cigarets, etc., from the attached paper, for the purpose of salvaging the tinfoil. Since February 1946, a new mixture of wax and paraffin with some additions had been used as paste, and the question now arose whether the cause of the disorder might not be contained in this mixture. This assumption is supported by the fact that in the factory in which the tinfoil was produced, the same disorder appeared in the workers who tended the machine which attached the paper to the tinfoil by means of the mixture and also in a worker who tended the machine mixing the paraffin.

Woodcutter's Eczema.—The eczema of lumber workers, described by Tenchio, is usually localized in the waistline which the workmen are in the habit of girding with a scarf or sash. It is also seen round the neck of persons who transport wood on their shoulder. The fact that the eczema never attacks persons working on young trees, but only those felling older trees, gave rise to the theory that a lichen on the old tree trunks, viz., the Parmelia caperata, might possibly be the cause of the eruption. Experiments made with the lichen itself and with an extract prepared from it proved the correctness of this supposition. But the lichen only induces the eczema when accompanied by severe sweating and exposure to sunlight.

Krebsarzt, Vienna

3:401-440 (Nov.) 1948. **Partial Index**

Contribution to Early Diagnosis of Prostate Carcinoma by Demonstration of Tumor Cells in Prostate Secretion. H. Haschek and W. Gütter.—p. 401.
Short Distance Roentgen Irradiation of Superficial Neoplasms. F. Hammer.—p. 411.
Adenoma of Thyroid with Solitary Metastasis Into Sternum. H. Hyden. —p. 418.
*Primary Lymphosarcoma of Stomach and Its Relations to Peptic Ulcer. H. Kreitner.—p. 423.

Lymphosarcoma of Stomach and Peptic Ulcer.—Kreitner says that in the course of two years 5 lymphosarcomas of the stomach were treated at a Vienna clinic. A correct diagnosis was never made before the operation. Three times a peptic ulcer was suspected and in the other 2 cases it was assumed that malignant degeneration had taken place in a peptic ulcer. The true nature of the lesion was revealed only by microscopic study. In 4 of the patients two thirds of the stomach was resected and in one case the antrum was resected. In this instance the primary sarcoma was not removed and this patient died six months later with metastases in the liver and kidney. The other patients are still alive; however, only two years have elapsed since operation in the earliest case. The author points out that many observers have assumed the possibility of the development of lymphosarcoma from a peptic ulcer, although this has not been definitely demonstrated, and there are some who reject such a pathogenesis. Three of the 5 patients observed by the author had had ulcer symptoms for years before the lymphosarcoma was discovered, and 1 had been unsuccessfully treated for a duodenal ulcer. The 5 cases of lymphosarcoma seen at the author's clinic were detected among 69 gastric carcinomas and 350 peptic ulcers. The average age of the 5 patients was 53 years. The site of predilection seems to be the prepyloric and the antral region. Eighteen months is the average survival time when the lymphosarcoma remains untreated; with surgical treatment the prognosis is about the same as in gastric carcinoma, but the radio sensitivity of lymphosarcoma is better than that of carcinoma.

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Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3157-3268 (Oct. 9) 1948. **Partial Index**

Case of Postvaccinal Myelitis and Recent Investigations on Postvaccinal Encephalitis. P. H. Kramer.—p. 3172.
Defect of Septum Atriorum. F. S. P. van Buchem and J. L. van Wermerskerken.—p. 3180.
Course of Open Pulmonary Tuberculosis During the War. J. F. Droogleever.—p. 3188.
*Herpes Zoster in Spondylarthrosis Deformans and in Hernia of the Nucleus Pulposus. A. M. L. de Haas.—p. 3195.

Herpes Zoster in Spondylarthrosis Deformans and in Hernia of Nucleus Pulposus.—According to de Haas herpes zoster is chiefly a disease of the peripheral sensory neuron. This neuron may became predisposed to an attack by the zoster virus when it has become impaired by another process. Such impairment may be caused by various disorders of the spinal column. The author reports 2 cases of severe spondylarthrosis and 1 of hernia of the nucleus pulposus. In these cases herpes zoster developed in the areas of the peripheral sensory neurons that correspond to levels of the spondylarthroses and the disk hernia, respectively.

Nordisk Medicin, Stockholm

40:1755-1804 (Oct. 1) 1948. **Partial Index**

*Effect of Desoxycorticosterone Acetate and Sodium Chloride in Orthostatic Anemia and Postural Hypotension. R. Luft and B. Sjögren.—p. 1764.
*Leukemia and Phosphatase. J. B. Dalgaard.—p. 1767.
*Additional Cases of Nephropathia Epidemica. G. Myhrman.—p. 1770.
Artificial Kidney, Its Forms and Indications. E. Ask-Upmark and O. Hogeman.—p. 1773.
Trauma and Peptic Ulcer. H. Malmros and A. Norden.—p. 1775.
Folic Acid Treatment in Macrocytic Anemia in Sprue Refractory to Liver Treatment. N. R. Christoffersen and F. Heintzelmann.—p. 1779.
Doca (11-Desoxycpricosterone) Treatment in Crisis of Addison's Disease. H. Simonsen.—p. 1780.
Fatal Air Embolism After Insufflation of Eustachian Tube. I. Hagness.—p. 1781.
Air Embolism After Insufflation of Fallopian Tube. K. Kulseng-Hanssen.—p. 1783.

Effect of Desoxycorticosterone Acetate and Sodium Chloride in Orthostatic Anemia and Postural Hypotension.—Luft and Sjögren report that in 2 cases of postural hypotension treament with 20 mg. desoxycorticosterone acetate and 10 Gm. sodium chloride daily resulted in a moderate rise in systolic and diastolic pressure; the patients could stand upright and walk about relatively well and return to a fairly normal way of life. In the 2 cases of orthostatic anemia similarly treated the abnormal orthostatic changes disappeared and the patients were subjectively well and again able to lead a normal life. Continued supply of desoxycoricosterone acetate was furnished by tablet implantation (5 tablets of 100 mg. each), administration of the hormone in crystalline suspension (injection of 50 mg. every other week) or by tablets orally (5 mg. daily).

Leukemia and Phosphatase.—Dalgaard estimated the serum phosphate in 25 cases of leukemia by the Buch and Buch method mainly in relation to variations in the leukocyte count on roentgen treatment. In patients with lymphatic leukemia, aleukemic myelogenous leukemia and plasmacellular leukemia the values were normal before and after roentgen treatment. In chronic myeloid leukemia there was usually, coincident with the reduction in the leukocyte count, a distinct rise in serum phosphatase after roentgen treatment; in 2 cases, however, the phosphatase reaction was negative. The reduction in the number of mature leukocytes is believed to be decisive for the phosphatase reaction. Histochemical investigations according to Gomori show abundant phosphatase in these cells. The improvement reported in the literature in leukemia patients treated with radioactive phosphorus seems to occur predominantly in patients with chronic myeloid leukemia, and it is suggested that the treatment should be applied in selected patients shown to be phosphatase positive.

Additional Cases of Nephropathia Epidemica.—Myhrman reports 8 new cases of an infectious disease of unknown origin observed in Northern Sweden and previously described by him and others. It is marked by acute onset with fever, abdominal pain and transient nephrotic syndrome.

Oncologia, Basel

1:72-128 (No. 2) 1948

Changes in Blood Protein Bodies in Patients with Malignant Tumors. C. Wunderly and F. Wuhrmann.—p. 73.
Cancer of Breast in Zurich. H. R. Schinz and C. Botsztejn.—p. 91.
*Mammary Cancer in Man (Question of Relation Between Mammary Cancer and Sex Hormones). C. Botsztejn and H. R. Schinz.—p. 110.

Mammary Cancer in Man.—Reviewing the present status of knowledge on the relationship between sex hormones and mammary cancer, Botsztejn and Schinz point out that animal experiments on mice from breast carcinoma strains indicate that estrogenic hormones favor the development of mammary cancer whereas androgenic hormones are antagonistic to it. The authors cite clinical observations on this problem and review observations on 11 breast cancers that were observed in men during a period when 1,027 women with breast cancer were treated. Thus the incidence of male to female mammary cancer is about 1:100. As regards the microscopic structure and the clinical course, carcinoma of the male breast does not differ from carcinoma of the female breast. Apparently gynecomastia is the factor that predisposes to the development of cancer of the breast in men. The treatment of gynecomastia with male hormone may act prophylactically against carcinoma. After cancer has developed, treatment with sex hormones is only an adjuvant to other treatments. Surgical treatment or radium therapy must not be omitted. Castration, roentgen sterilization and estrogenic hormones are contraindicated in men; their value in women is not proved. A trial with male hormones is justified as a palliative measure in cancer of the breast in both sexes.

Wiener klinische Wochenschrift, Vienna

60:677-692 (Oct. 22) 1948. **Partial Index**

*Experiences with Epidemic of Poliomyelitis in 1947. E. Lorenz.—p. 677.
Surgical Removal of Blood from the Filled Operative Cavity After Pneumolysis. K. Janauschek.—p. 680.
Contribution to Differential Diagnosis of Sprue. R. P. Koenigstein.—p. 681.
General Problems of Irradiation Therapy. K. Weiss.—p. 683.

Epidemic of Poliomyelitis.—Lorenz reports 168 children with acute anterior poliomyelitis who were admitted to the pediatric clinic and the ward for infectious diseases in Graz, Styria, in 1947. Contrary to expectation, the highest incidence was observed among children aged 7 and 8, rather than in infants, and the incidence decreased rapidly in children between the ages of 12 and 14. Only 45 per cent of the patients were suckling babies and infants, while 55 per cent were between the ages of 6 and 14 years. There were only 5 deaths, 4 of them in children of preschool age. This mortality rate of only 3 per cent as compared to that of 8 to 10 per cent in epidemics of previous years may be explained by the clinical aspect of the cases reported. Fifty-four—i. e., one third of the cases—were of the meningeal, aparalytic type, with signs of severe irritation of the spinal cord and decisive changes in the cerebrospinal fluid; 93 cases (55.4 per cent) were of spinal paralytic type and only 20 cases (12 per cent) were of cerebral paralytic type. There was only 1 case of spinal ataxia. On admission only 14 of the 168 patients (8.3 per cent), 10 of spinal paralytic and 3 of cerebral paralytic type, had a normal cerebrospinal fluid; 128 patients, 44 of them of the meningeal type, 71 of the spinal paralytic and 13 of the cerebral paralytic type, had pleocytosis and normal albumin level; 20 patients had pleocytosis with elevated albumin level; only 6 patients presented Guillain-Barré's albuminocytologic dissociation. After three or four weeks' duration of the disease the cerebrospinal fluid was restored to normal in only 96 patients, 15 had pleocytosis, 8 pleocytosis and increased albumin content, but 45 presented albuminocytologic dissociation, which shows that in poliomyelitis increase in lymphocytes does not always parallel that in albumin. Recurrent increase in lymphocytes but little increase in albumin was observed in 8 patients between the ages of 4 months and 13 years, in the third week of the disease after the cerebrospinal fluid had been improved but not yet restored to normal. There was a long period of convalescence in all patients, and the cerebrospinal fluid did not become normal for some months.

Book Notices

Virus Diseases of Man. By C. E. van Rooyen, M.D., D.Sc., M.R.C.P., Research Member and Professor of Virus Infections, Connaught Medical Research Laboratories and School of Hygiene, University of Toronto, Toronto, and A. J. Rhodes, M.D., F.R.C.P., Research Associate and Associate Professor of Virus Infections, Connaught Medical Research Laboratories and School of Hygiene, University of Toronto. Cloth. Price, $22.50. Pp. 1202, with 43 illustrations. Thomas Nelson & Sons, 385 Madison Ave., New York 17, 1948.

Since the first edition of this outstanding monograph covering the field of human and animal virus infections appeared in 1940, many advances have been made in this field and at least twenty new viruses have been discovered. That both the fundamental and applied aspects of virus research have made rapid strides is fully reflected in the extensive revisions and expansions of the text. The authors have critically reviewed and appraised with due regard to respective value every publication on virus infections in the ten year period between 1938 and 1948. For an actively developing field with its ramified ecologic implications this revision was indeed urgently needed. They have added 270 pages to the 1940 edition and vigorously condensed and eliminated unessentials. In so doing, they dropped the chapter by T. J. Mackie which reviewed, in a readable form, the historical evolution of the knowledge of the viruses of man and animals. This minor omission is well counterbalanced by the inclusion of a store of newer information on some statistical methods in virus studies, serologic technic, the fertile egg in the study of viruses and other phases. Each chapter of the eighty-nine which deal with the various aspects of the respective virus infections is admirably balanced and contains concise data concerning the clinical aspects with reference to diagnostic aids, immunoprophylaxis and specific therapy and antibiotics if available. It satisfies the needs of the teacher, clinician and laboratory worker. For example, the chapters on the variola-vaccinia virus carries in 25 pages nearly 1,500 references, and the review on poliomyelitis required a bibliography of 1,000 references on 24 pages. A complete index and excellent printing of the text with well chosen illustrations and readily readable tabulations and charts recommend this work as the most complete reference book on the virus infections of man.

A Handbook for the Diagnosis of Cancer of the Uterus by the Use of Vaginal Smears. By Olive Gates, M.D., Pathologist, Massachusetts State Tumor Diagnosis Service, Boston, and Shields Warren, M.D., Assistant Professor of Pathology, Harvard Medical School, Boston. With a foreword by George N. Papanicolaou, M.D., Ph.D., Associate Professor, Department of Anatomy, Cornell University Medical College and New York Hospital, New York. Paper. Price, $4. Pp. 182, with 50 plates. Harvard University Press, Cambridge 38; Oxford University Press, Amen House, Warwick Sq., London, E.C. 4, 1947.

This book, devoted to the study of vaginal, cervical and endometrial cells and their malignant components, is a valuable one. The careful and well judged arguments, pro and con, for the value of the smear are fair and carefully considered. The authors admit freely their difficulties with certain types of cells and the necessity of prolonged study and observation before qualifying as an expert in this method of diagnosis. They have carefully set forth the methods best suited for collecting, preserving and staining the specimens so that any one interested in the problem can soon learn how to obtain and stain satisfactory specimens. Gates and Warren discuss the morphology and normal histology in chapters that are easy to read and clearly written. The descriptions of malignant cells and their characteristics are well done. The whole text is honest, clear, concise and as important a contribution as has been made by any one in the study of this new method of diagnosis. The photomicrographs that illustrate the normal and malignant cells are beautiful and characteristic of the work of their laboratories. It is the reviewer's belief that the grouping of the photomicrographs might have been done better for the neophyte and that perhaps the doubtful cells pictured might have been left out all together. The illustrations with the easily understood captions are extremely satisfactory and probably will mean more to an interested pathologist than any group of photomicrographs as yet published. This book is important and should be a must for all laboratories interested in the cytology of normal and malignant cells.

Gynaecological Histology. By Josephine Barnes, M.A., D.M., M.R.C.P., Assistant, Obstetric Unit, University College Hospital, London. Cloth. Price, 30s. Pp. 242, with 162 illustrations. Harvey & Blythe, Ltd., 6 Hanover Square, London, W. 1, 1948.

This small book was written with the object of providing a simple guide to the histology of the normal and abnormal tissues encountered in gynecologic practice. All but one of the illustrations consist of photomicrographs from actual slides. The author hopes that the majority of the readers will have access to slides so they can compare the appearance as seen under the microscope of the tissues described and illustrated in the book.

The book contains 162 illustrations and only sufficient text material to explain the chief points in the histology of the tissues which are illustrated. The choice of material is excellent, the photographs are all that can be desired and the text is written in clear simple language. This book should prove to be most helpful to all young gynecologists and to older ones who never had training in gynecologic pathology. Certainly any one who performs gynecologic operations must possess the knowledge which this book imparts. The author and the publishers are to be congratulated on having produced an excellent, compact book on gynecologic histology.

Textbook of the Rheumatic Diseases. Edited by W. S. C. Copeman, O.B.E., M.D., F.R.C.P., Physician to the Rheumatism Department and Lecturer in the Medical School, West London Hospital, London. Cloth. Price, $12.50. Pp. 612, with 351 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

Here, typical of many recent works in medicine, is a composite volume to which twenty-four noted British physicians have contributed. This is the first book exclusively devoted to rheumatic diseases developed in Great Britain. The work begins with a discussion of the nomenclature and classification of rheumatic diseases and then devotes separate chapters to all of the different forms from rheumatic fever to sciatica. Other chapters are concerned with differential diagnosis, pathology, radiology, physical therapy, orthopedics and psychiatric considerations. The classification adopted is one developed by a special committee of the Royal College of Physicians. The historical article indicates the antiquity of rheumatic disease, which was described by Hippocrates. Indeed, remnants of arthritis have been found in bodies far antedating the time of Hippocrates. The historic chapter has an excellent bibliography. Since every part of the body is concerned in rheumatic diseases, sections are devoted to the skin and to the anatomy and physiology of pain. The book is beautifully printed on good enamel stock so that the illustrations are among the best available in any work of this character. Among the most important of the discussions is the consideration of weight reduction in cases of osteoarthritis in which treatment may fail unless weight reduction is assured. The consideration of fibrositis, which is a subject of considerable controversy, is adequate; it is discussed in relation to every phase of diagnosis, pathology and treatment of the disease. Several volumes on the rheumatic diseases are available in the American literature. American readers will be especially interested in some of the differences in point of view that prevail among British writers.

Health of Workers Exposed to Sodium Fluoride at Open Hearth Furnaces. Prepared by direction of the Surgeon General by J. Walter Hough and others, Industrial Hygiene Division, Bureau of State Services. Public Health Bulletin No. 290, Federal Security Agency, Public Health Service. Paper. Price, 25 cents. Pp. 64, with 2 illustrations. Supt. of Doc., Government Printing Office, Washington 25, D. C., 1948.

This government document presents an authoritative report of a complete and exhaustive study of the subject conducted by the Industrial Hygiene Division of the U. S. Public Health Service on the request of representatives of the Republic Steel Corporation and the United Steelworkers of America, C. I. O. Numerous questions have arisen concerning the effects of sodium fluoride on health in industry, particularly in connection with its use in open-hearth operations in steel mills. Suspicion of potential health hazards inherent in its use has provoked much labor unrest. Workers have complained bitterly about its use.

Field work was conducted in four Republic Steel Corporation plants in Ohio. Medical examinations were made of 350 men, distributed as follows: One hundred and eighty-seven in

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two plants now using sodium fluoride, 63 in a plant where sodium fluoride formerly was used and 100 as a control group in a plant which had never used sodium fluoride. Laboratory investigations included determinations of amounts in the air of: fluorine, total fume, oxides of iron, and manganese. Roentgen diffractions were made of fume and dust. Urine samples were studied to determine their fluorine content.

The medical and dental study included a detailed occupational history and a record of past diseases, operations and injuries. Present symptoms were recorded with special emphasis on irritative effects of fume. A complete physical examination was performed with attention directed toward any evidence of 'ens opacity and inflammation of the mucous membranes of the eyes, nose and throat. A roentgenogram of the chest was taken of each worker as well as one of his left wrist and forearm. A clinical oral examination was made of each employee.

Concentrations of iron oxides and manganese fumes were below the accepted maximum allowable concentrations, and it is concluded that they would not constitute a significant health hazard. On a basis of physical and roentgen observations, there were no definite changes attributable to sodium fluoride. It was concluded that exposure to sodium fluoride has little or no disabling effect on the tissues and structures of the oral cavity and that sodium fluoride does not produce tissue necrosis when introduced into the oral cavity in the atmospheric concentrations reported. However, sodium fluoride, in combination with other fumes and dusts, may be a contributing factor in producing soft tissue inflammation in the mouth.

From these findings, it appears that sodium fluoride does not constitute a significant health hazard under the industrial environmental conditions of this study.

Recommendations are submitted with a view to reducing the density and irritation of smoke and fume produced in this industrial process.

Index of Treatment in Small-Animal Practice. By Hamilton Kirk, M.R.C.V.S., Official Veterinary Surgeon to Clapton Greyhound Stadium, London. Cloth. Price, $10. Pp. 773, with 154 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves, Baltimore 2, 1948.

The author has gathered a vast store of information on veterinary therapeutics, particularly that which pertains to the treatment of dogs and cats. This has been segregated from general discussions in current articles, has been condensed to concise form and is presented as an alphabetic, encyclopedic treatise on the alleviation of the ills of dogs and cats. The diagnosis is not a part of the text, having been discussed in a preceding volume.

Part I of the book (consisting of 146 pages) presents a systematic discussion of the several types of therapy—actinotherapy, radiant heat therapy, electrotherapy, chemotherapy, hormone therapy, vaccine and serum immunization and therapy, nonspecific vaccine therapy, vitamin therapy, the barbiturates, the antiseptics (wound, intestinal and urinary) and the anesthetics (local and general).

Part II (consisting of 479 pages) provides the body of the book, with an alphabetic, encyclopedic discussion of conditions varying from abdominal pain to yawning.

Part III (96 pages) describes the procedures for handling and restraint, administration of medicine, nursing the sick, food and feeding, disinfectants and disinfection, euthanasia and rat extermination and includes a posologic table, general information and tables, the poison acts and an addendum which presents recent information on penicillin, sulfamezathine,® (2-sulfanilamido-4,6-dimethylpyrimidine), leptospiral jaundice, eczema or pruritus, anorexia and marasmus, encephalitis and sarcoptic mange.

All this information is made available through an index of 42 pages. In one notable respect it differs from most texts printed in the United States: The discussion, the tables and the index include the proprietary remedies commonly merchandised in Great Britain along with the pharmaceutic drugs and their dosages and actions. For the person who has arrived at a diagnosis, the book presents a vast assortment of opinions and suggestions for treatment.

Methods in Medical Research. Volume I. Van R. Potter, Editor-in-Chief. Assay of Antibiotics, Henry Welch, Editor; Circulation—Blood Flow Measurement, Harold D. Green, Editor; Selected Methods in Gastroenterologic Research, A. C. Ivy, Editor; Cellular Respiration, Van R. Potter, Editor. Cloth. Price, $8. Pp. 372, with illustrations. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1948.

This volume is the first of a series, presenting descriptions and critical evaluations of methods, apparatus and step by step procedures in various fields of biologic and medical research. The present publication covers four fields: (1) assay of antibiotics, (2) circulation—blood flow measurement, (3) selected methods in gastroenterologic research and (4) cellular respiration. Each section is in charge of an associate editor, and some contain contributions and comments by particular experts on special aspects, so that altogether some fifty contributors and reviewers have added their knlowledge to this compilation.

This book and others to follow will meet a long felt need in biologic and medical laboratories, and should also be of considerable interest to physicians who wish to know the basis on which many of the facts which they use in practice have been established. The authors and publishers are to be congratulated on a useful service, well performed.

Radiotherapy and Cancer. By A. G. C. Taylor, M.R.C.S., L.R.C.P., D.R., Joan Lassetter, M.B., Ch.B., D.R., and T. K. Morgan, M.B., M.R.C.S., D.M.R. (T), Radiotherapists of the Wessex Radiotherapy Board. Boards. Price, 7s. 6d. Pp. 81. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1948.

This booklet of 81 pages illustrates the trend in radiotherapy in a scheme of socialized medicine. The radiation therapy is given at a specially equipped and staffed center. Briefly, the work explains the mode of action and the effects of treatment with radium and roentgen rays, how cases are selected for treatment and, in brief form, the methods employed. The authors are the radiotherapists of the Wessex Radiotherapy Board, controlling the facilities for radiotherapy and the radiotherapeutic staffs at Southampton, Bournemouth and Portsmouth. In the second part of the book they give their ideas as to how cancer should be treated. These views are generally accepted in radiotherapeutic circles. Although surgical treatment is nearly always ignored if there is no hope of cure, these patients are given the benefit of radiotherapy for palliation. In a large percentage of cases the program of treatment is dependent on whether it is decided to try to cure or to palliate or whether to leave alone.

Hematology. By Cyrus C. Sturgis, Professor of Internal Medicine, Chairman, Department of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan. Fabrikoid. Price, $12.50. Pp. 915, with 80 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1948.

The American textbooks on hematology are continually increasing. In 1897 the only American text was that of Richard C. Cabot.

Sturgis' book is published in large readable type on heavy glossy paper. Two features make it distinctive: (1) a detailed, comprehensive approach to history and (2) a truly comprehensive review of the literature. The historical discussions are not to be found in any other similar book. Sturgis points out in his preface how the development of the historical approach leads to a better understanding of a disease condition or therapeutic maneuver and to a better fixation of the disease in memory. The references to the literature are given in full at the bottom of the page on which they are cited. They are also repeated in alphabetical order at the back of the book; altogether, about 100 pages are devoted to references.

This sound book is recommended to students and practitioners. Functional pathology is not stressed, and because of this the book not infrequently suffers. The conventional or nosologic approach is probably best for the student.

The book begins, not with a discussion of embryonic blood formation or of hematopoiesis, as is customary, but with a chapter on anemia. Although this highlights the practicality of the work, some students might carp at the rather scant attention paid to fundamental cytology and hemopoiesis.

The chapter on pernicious anemia is outstanding. That on erythroblastosis fetalis is rather sketchy. There is an excellent chapter on agranulocytosis. An 18 page chapter on sternal

puncture and an 80 page chapter on blood transfusion and blood substitutes complete the book.

The colored lithographs are in general "muddy" and could be much better. The line drawings are good. The artistic merit of the big word "hematology," which occupies the entire "backbone" of the book, is to be questioned.

In summary, this new book on hematology, which emphasizes the practical, the historical and the bibliographic approach, should be of great value to the student and practitioner; the outstanding bibliography will be of value to the investigator of source material.

An Introduction to Medical Mycology. By George M. Lewis, M.D., Associate Professor of Clinical Medicine (Dermatology), Cornell University Medical School, New York, and Mary E. Hopper, M.S., Third edition. Cloth. Price, $8.50. Pp. 366, with 105 illustrations. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1948.

Many improvements have been incorporated in the third edition of this volume. There is an even greater number of the excellent illustrations than in previous editions, and the appearance of this volume has been generally streamlined. More data on the physiology of fungi have been added. Cross sensitization between penicillin and certain dermatophytes is discussed. A number of additional fungi have been included in the chapter on pathogenic fungi. The discussion of tinea of the scalp has been brought up to date on the basis of the authors' observations during the recent scalp ringworm epidemic.

In some parts of the book, such as in the chapter on otomycosis, the more recent advances in knowledge, acquired during the war, have not yet been included. Some of the debatable statements made and directions given in previous editions, including, for example, the "ritual" for prevention of tinea pedis, have been retained. However, this well recognized book is the most useful and practical volume on medical mycology, particularly for the dermatologist.

Microbiology and Pathology. By Charles F. Carter, B.S., M.D., Instructor in Pathology and Applied Microbiology, Parkland Hospital School of Nursing, Dallas, Texas. Fourth edition. Cloth. Price, $5. Pp. 845, with 241 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1948.

This edition, as were the previous editions, is designed primarily for use in training schools for nurses. For this purpose, it still retains exercises at the end of each chapter in the form of true and false questions and completion tests of sentences that apply to contents of each chapter. In bacteriology, a discussion on sulfonamide compounds and antibiotics has been added. An attempt is made to use some of the newer nomenclature and at the same time retain the old. Improved methods of immunization are discussed in a new chapter. In the section on pathology, considerable material has been revised. A chapter on defects of body development is a new feature. Good illustrations have been added, but many of the old black and white and colored could have been replaced by more modern photographs. The book is recommended especially for use in courses of bacteriology and pathology for nurses.

The Child in Health and Disease: A Textbook for Students and Practitioners of Medicine. By Clifford G. Grulee, M.D., Rush Professor of Pediatrics, University of Illinois, Chicago, and R. Cannon Eley, M.D., Associate in Pediatrics and Communicable Diseases, Harvard University Medical School, Boston. Cloth. Price, $12. Pp. 1066, with illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This new volume was begun before the recent war and was delayed in publication by the stresses of that period. When the war ended a complete revision of each of the contributions became necessary. In the introduction the editors point out that the shortage of pediatricians makes necessary much more training of general practitioners to meet the needs of practice in this field. The present volume is a collection of articles written by a great number of contributors to pediatric knowledge. The book is classified by disturbances of various systems of the body and by various types of disease. Special sections are concerned with adolescence, and there is a section on surgical pediatrics. A final chapter discusses a variety of subjects not easily classified. The book is printed on an excellent quality of paper stock with fine illustrations, charts and tables. The book is authoritative in its statements, succinct in its presentation and bound to be helpful to both specialists and general practitioners, as well as to students.

Les varices de la grossesse et leur traitement principalement par les injections sclérosantes. Par Raymond Tournay et Pierre Wallois. Paper. Price, 250 francs. Pp. 139, with 12 illustrations. L'Expansion scientifique française, 23 rue du Cherche Midi, Paris 6e, 1948.

This is a well written, concise monograph on the management of varicosities of the lower extremities, vulva, vagina, rectum and suprapubic region during pregnancy. The authors believe in a strong hereditary factor, discount the pressure of the enlarged uterus as an important causative agent, but believe in an endocrine influence on smooth muscle to explain the venous atony and back pressure during the pregnant state. They describe the clinical picture and complications illustrated with excellent, large photographs. In addition, excellent black and white drawings are used in the text. They believe in the injection treatment of varicosities, no matter where they are situated. They do not believe in preliminary ligations combined with sclerosing therapy, nor do they seem to limit their injections to cases of a valvular insufficiency of the saphenous system. The monograph may be recommended to obstetricians to stimulate their interest in this complication of pregnancy. The suggestions regarding prophylaxis, early treatment and prevention of postpartum phlebitis are sound. Their method of treatment, which does not eliminate the valvular insufficiency of the deep venous systems of the leg and pelvis from sclerosing therapy, is highly debatable.

An Introduction to Color. By Ralph M. Evans, Color Control Department Head, Eastman Kodak Company, Rochester, N. Y. Cloth. Price, $6. Pp. 340, with 304 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W. C. 2, 1948.

The author, who is head of the color control department of the Eastman Kodak Company, has written a valuable book on the physics, physiology and psychology of color. The description of the rather complex physical conditions which determine color is lucid and accurate in spite of the use of nontechnical language, and is discussed on the basis of numerous diagrams. The physiologic and psychologic factors which determine the perception of brightness and color are discussed in detail and illustrated by beautiful color plates. The work deviates greatly from previous classical texts of this field and must be considered as a valuable supplement to the physiologic literature on color vision.

Disfunciones motoras del estómago. Por el Doctor E. Arias Vallejo. Prólogo del Profesor E. Oliver Pascual. Paper. Price, 35 pesetas. Pp. 155, with 66 illustrations. Agencia Garsi Publicidad Médica, Cava Baja, 11, Madrid, 1947.

This monograph on the motor dysfunctions of the stomach is well written and contains a large amount of information, mainly obtained from the literature. However, there are many illustrations and records of observations made by Vallejo himself. He makes some interesting observations on the slowing of gastric emptying which occurs with some inflammation of the small bowel.

Estudo da pericardite experimental. Por Eduardo Coelho, Artur de Oliveira, Leonel Cabral e Manuel Prates. Paper. Pp. 77, with illustrations. Lisbon, 1946.

This monograph presents the authors' concepts of the genesis of the electrocardiogram found in pericarditis. It is based on experimental studies of the authors in the dog and monkey. They found a lack of relationship between the alterations in the electrocardiogram and the morphology of the myocardium. They conclude that electrocardiographic changes in pericarditis depends on changes at the surface of the heart. This conclusion is at variance with the mass of evidence obtained by others.

Atomic Energy. By Karl K. Darrow, Ph.D. Being the Norman Wait Harris Lectures Delivered at Northwestern University. Cloth. Price, $2. Pp. 80, with 13 illustrations. John Wiley & Sons, Inc., 440 4th Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C. 2, 1948.

The author of this book was invited to present the subject of atomic energy in four lectures to an audience who were not physicists. This problem has been pretty well solved, for the material is readable and interesting without being superficial. A number of tables supply concrete details as food for thought without detaining the reader unduly. For many persons it will be a welcome introduction to a difficult but important subject.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ACCIDENTAL EXPOSURE TO LEPROSY

***To the Editor:*—I was testing a leper for skin anesthesia and accidentally stuck my own arm with the pin. About twenty minutes later I cauterized the site with sulfuric acid. Do you think it would be advisable to take a course of sulphetrone® (4:4'-bis [gamma-phenyl-N-propylamino diphenyl-sulfone-tetra sodium sulfonate]) or some other suitable drug as a prophylactic? If so, how much do you recommend?**

R. S. Newbold, M.D., Belgian Congo.

ANSWER.—The inquiry does not state whether leprosy bacilli were recovered from the skin of the patient in question. The presence or absence of organisms in the skin is of paramount importance. The chance of transferring the infection from a negative case is considered to be nonexistent; if, on the other hand, organisms could be recovered from the skin the chance of transferring the infection is at least theoretically present.

From the numerous instances recorded in the medical literature in which deliberate experimental attempts of transmitting leprosy from infected to healthy persons by direct inoculation have resulted in failure to transmit the infection, it would appear that in this instance the possibility of leprosy transmission is exceedingly remote. The examiner's arm was apparently stuck only once with the questionably infected needle and the point of contact was later cauterized with sulphuric acid. In the instances of the experimental attempts at transmitting the infection, repeated inoculation were made and, of course, no attempt at destroying the inoculant was made. Yet evidence of infection in these experimental attempts (some 140 odd) recorded in the medical literature did not occur.

There are instances of accidental infection with leprosy reported. Rogers and Muir in a textbook on leprosy (Leprosy, ed. 3, Baltimore, William Wood & Company, 1946) listed several instances of accidental inoculation including that of Marchaux, who in 1922, while operating on a leprosy patient, pricked the finger of his assistant, in whom leprosy developed after several years. A case reported by Lagandaky in 1936 is also mentioned. This patient received repeated injections of blood from a patient with leprosy, and in less than two months after his first inoculation cutaneous lesions of leprosy were developed. In the face of such reports it is understandable why concern should be shown by any one who feels that accidental inoculation has taken place, although such an inoculation might be of the most superficial kind.

Since drugs of apparent chemotherapeutic activity against leprosy are available in the sulfones, it is also probable that they would be of prophylactic value against the development of the disease. So far no instance of their use prophylactically has been reported. On leprous lesions the action of the sulfones is found to be slow but certain. It is felt that these drugs are capable of preventing the formation of new lesions, allowing the old lesions to disappear much in the same manner as occurs during spontaneous recovery from the disease. The exact mechanism whereby this therapeutic activity is accomplished is not known, but there is a suggestion that if sterilization does not occur at least a reduction of leprosy bacilli in the blood stream occurs after the use of the sulfones. The latter occurrence is probably the most tenable because the action of the drugs under no circumstances is rapid, and prolonged administration of the drugs is necessary for any considerable clinical improvement.

In the present instance although the likelihood of infection is exceedingly remote it is present and cannot be ignored. The recommendation of one of the sulfones on a prophylactic basis would imply that the mechanism of their action is more or less completely understood. Furthermore, their use for such a purpose from the experience gained in the treatment of leprosy would have to be of rather prolonged duration. It therefore would appear that a more practical solution of the problem in this case would have been excision of a small area of skin at the point of inoculation followed by some form of cautery. That some organisms have reached the blood stream is a rather remote possibility and probably of no higher occurrence than is experienced by leprosy workers in general in their routine daily work and successfully combated by the body defense system. If there is an indication that the frame of mind against fear of infection can be bolstered by the use of the sulfones their use might be of benefit; there is no particular contraindication to their use as they are of fairly low toxicity and if used with discretion can cause no harm. An unequivocal scientific recommendation for the use of the sulfones prophylactically must await such basic consideration as the cultivation of the leprosy bacilli on artificial mediums followed by in vitro and in vivo studies of the effect of these drugs on the organism. Before that is done the use of sulfones prophylactically cannot be recommended except on an empiric basis.

OXYGEN SATURATION OF HEMOGLOBIN

***To the Editor:*—Mutch in 1940 reported the alveolar concentration of oxygen by various means of administration as follows: normal, 15 per cent; nasal catheter, 30 per cent; tent (usual), 45 per cent; tent (extreme), 60 per cent, and B. L. B. mask, 90 per cent. What are the comparable blood concentrations of oxygen in the pulmonary veins or peripheral arteries by these methods in normal conditions, cardiac embarrassment, burns, shock, atelectasis and other diseases restricting the tidal air volume of the lungs?**

R. A. Davison, M.D., Hendersonville, N. C.

ANSWER.—Some of the basic physiology concerned in this question is to be found in "The Principles and Practice of Inhalation Therapy" by A. L. Barach (Philadelphia, J. B. Lippincott Company, 1944), and appropriate chapters in "Physiologic Basis of Medical Practice" by Charles H. Best and Norman B. Taylor (Baltimore, Williams and Wilkins Company, 1945).

Rather than speak of oxygen concentration of the blood, it is preferable to direct attention to oxygen saturation of the hemoglobin in the blood. The oxygen in the blood is presumably in equilibrium with the oxygen in the alveolar air, as is also true for carbon dioxide. However, the concentration of oxygen in the alveoli depends on the partial pressure also exerted by the carbon dioxide and the water vapor in the alveolar air and the efficiency of the lung in ventilating the terminal alveoli, as well as on the concentration of oxygen in the air breathed.

Because of the peculiar dissociation curve of a hemoglobin-oxygen mixture in the face of various carbon dioxide tensions, the oxygen saturation of hemoglobin does not vary directly with the oxygen tension in the alveolar air. Correction of the acid-base imbalance present in nearly all of the listed states is at least as important as furnishing oxygen in the inspired air.

In the last analysis, the choice of mode of oxygen administration depends on the method which will supply the most oxygen and permit optimal pulmonary ventilation while other treatment is directed toward the underlying disease.

CODEINE ADDICTION

***To the Editor:*—A patient suffering intense pain in arms, legs, neck and head of unknown origin or causation was started on codeine hypodermically by another doctor. She had been taking large amounts of acetylsalicylic acid but without much relief. She was taken to Chicago and found to be allergic to most of the common foods and a few drugs. Her condition is better than a year ago but she still requires several injections of codeine daily. I have been told that it is not difficult to take a patient off codeine when the need for it no longer exists. Is this true? What can I use in place of codeine to relieve her pain?**

M.D., Ohio.

ANSWER.—After need for the drug no longer exists, relief of the rather mild physical dependence created by prolonged use of codeine is simple. Codeine has been included in the group of drugs under control of the Bureau of Narcotics mainly because addicts, or potential addicts, not satisfied with the action of this drug, change to one of the more dangerous opiates or to substances whose action resembles that of the opiates.

As with all attempts at withdrawal from a substance on which a person is in any way dependent, complete control of the patient's environment is necessary but, of course, frequently difficult or impossible. With assurance that the patient has no access to any substance not prescribed, or given, by the physician, an occasional dose of codeine for several days, reducing rapidly the size of the dose, will insure that no great discomfort will be felt by the patient. A serious possibility is that a patient is also taking some other drug, e. g., a barbiturate; if there is definite physical dependence in this group, sudden withdrawal may be followed by a grand mal seizure, so severe as to cause fracture of a femur, or serious compression fracture of one or more vertebrae.

Several things in the question need amplification. Nothing is given as to how large the "large amounts" were, or as to what the present daily dosage is. "Intense" pain is not usually relieved by codeine. Pain of the character and in the distribution described is often encountered as a part of a severe abstinence syndrome for morphine. There should, however, be other manifestations of this syndrome, e. g., yawning, goose flesh, restlessness and, in the more severe stages, vomiting and diarrhea and, finally and most serious, hyperpyrexia (105 F. and above).

Intensity of pain is difficult to measure. What might be an annoying discomfort to one person, to another would be an agonizing pain. Results of prefrontal lobotomy suggest that the interpretation of the severity and significance of a pain is in large part a function of the prefrontal lobes.

It is possible that the patient, without the knowledge of her physician, is taking some other drug with morphine-like action. If her supply became exhausted, some such complaint (real and not assumed) might lead her to demand relief.

Since the cause of the pain so far remains unknown, it is difficult to suggest a remedy. There are many analgesics that have only slight addictive risks.

There is a synergistic action between nearly all analgesics and members of the barbiturate group; a combination of small amounts of each will frequently give better results than either alone in much larger amounts. Wolfe has showed that the probable basis for this is a "chain reaction" started by a small focus of pain, and spreading widely through the muscles. Of course, barbiturates must also be given with care, especially to a patient whose "intense pain" is relieved by codeine.

The proper procedure, if it can be followed, is to place the patient in an environment where the physician can be absolutely sure that unauthorized medication is not obtainable; then follow this by a thorough study for possible causation. Without an approximation of such control of medication, the physician can never be certain that his patient is not complicating the situation by the use of too much of the same or of some other substance.

SOLVENT CONTACT DERMATITIS

To the Editor:—**A macular papular diffusely erythematous rash developed first on the patient's face and neck, with burning, stinging and some itching. In two days the rash spread over his face, trunk and upper extremities, being less severe on his hands and lower extremities. The skin became indurated and slightly edematous. Considerable symptomatic relief was obtained with 50 mg. tripelennamine hydrochloride, four times daily. Considerable desquamation accompanied improvement. A history was obtained of a similar but more localized rash occurring ten months previously after he had spilled fuel oil over his abdomen. Three days prior to the generalized eruption he had started working for a highway construction company cleaning asphalt from buckets and equipment with some solvent thought to be gasoline; stinging of the face and neck was noted shortly after the first exposure to these substances. Could such a rash be due to this industrial exposure, and is it proper to call it an exfoliative dermatitis?**

William C. Crothers, M.D., Salem, Ore.

ANSWER.—Contact with a solvent or fuel oil might well produce such an eruption in a patient who is hypersensitive to the materials. Such an eruption is more apt to be an acute contact type dermatitis rather than exfoliative dermatitis, which is characterized by generalized hyperemia, inflammatory infiltration, exfoliation, edema of soft parts, as the neck, eyelids and flexures, and a skin that is smooth, shiny and red where the scales have been removed—all accompanied by considerable chilliness.

SCHIZOPHRENIA

To the Editor:—**A white man aged 41 consulted me recently because of fear of insanity. He has always been in good health. No history of insanity occurs in parents or maternal and paternal grandparents. He has a mild anxiety neurosis, fear of fainting since having a sensation of lightheadedness about ten years ago, but otherwise is normal mentally. His sister, aged 36, has recently been committed to a mental hospital because of schizophrenia. What are his chances of developing schizophrenia?**

M.D., Ohio.

ANSWER.—At his age, with negative history in parents and grandparents, almost none.

TOUPEE PASTE

To the Editor:—**Are there carcinogenic properties in spirit gums used to hold toupees to the skin?**

M.D., Pennsylvania.

ANSWER.—The essential ingredients apparently are substances such as gum arabic, or tragacanth, which may produce dermatitis. Cancer has not been reported to be caused by these substances.

TUBERCULOUS PLEURAL EFFUSION

To the Editor:—**A patient, aged 53, in a sanitarium because of mild schizophrenia experienced typical pleural pain. Roentgenograms of the chest at the outset were normal in appearance. Fever and other abnormal findings were absent. Laboratory data were negative except for a moderate increase in the sedimentation rate. After a week the pain subsided, but a gradually increasing pleural effusion occurred. Before thoracentesis was performed a spontaneous pneumothorax also occurred. Examination of the fluid initially was negative for organisms. Cultures were negative, but specific gravity and the protein content, as determined in the usual examination, indicated that a transudate was present. Examination for tumor cells was negative. Several weeks after subsequent thoracenteses the laboratory reported acid-fast organisms found by direct smear, culture and guinea pig inoculation. Both the pneumothorax and pleural effusion remain after six weeks. Is daily closed drainage with effort to remove the air indicated? Should streptomycin be injected into the pleural cavity after thoracentesis (also penicillin) as prophylactic against empyema? The apexes of both lungs still appear normal. Tuberculosis is not evident elsewhere. Roentgenograms after the pneumothorax occurred showed adhesion of the middle lobe and the lateral chest wall.**

M.D., Washington.

ANSWER.—With pain as the first symptom, one might suspect spontaneous pneumothorax or pleuritis. In the beginning, either of these conditions may escape detection on the roentgenogram. So little air may have accumulated in the pleural space that it would not be visible to ordinary roentgenographic film inspection. Moreover, recent localized inflammation of the pleura cannot be visualized on the roentgenogram. It is assumed that the second roentgen inspection of the chest of your patient was not made until one week after the onset of symptoms. By this time enough air could have escaped through a minute rupture in the visceral pleura so as to be readily detected by roentgen ray. Visceral pleural blebs are a frequent cause of spontaneous pneumothorax in the absence of demonstrable evidence of disease in the lungs during life or even at postmortem examination. In such cases pleural fluid may accumulate in the pneumothorax cavity.

Another possibility is that a subpleural pulmonary lesion, too small to be seen by roentgenographic inspection or located in an area not clearly visualized, may have eroded or extended into the visceral pleura, resulting in inflammation of the parietal pleura with pain. If the condition were tuberculous this would be adequate to result in pleural effusion. Moreover, the subpleural lesion may have eroded through the visceral pleura so that air was readily admitted to the pleural space from the lung. Under such circumstances large numbers of tubercle bacilli may also be admitted to the pleural space.

Acid-fast bacilli are not always tubercle bacilli, even under these circumstances. However, with good laboratory technic there can be no doubt that those recovered from the fluid of this patient were tubercle bacilli, as the best known test for pathogenicity, namely, animal inoculation, was used. Failure to find tubercle bacilli when the fluid was first detected is not unusual. In fact, this often occurs even though a sizable number of specimens are examined.

If the pneumothorax is not large enough to cause pressure symptoms or extensive collapse of the lung with areas of atelectasis, removal of air is not indicated, as the creation of an excessively high negative pressure in the pleural cavity might keep the fistula open longer than if the air is allowed to slowly absorb. The relaxation of the lung resulting from the pneumothorax may permit a more ready closing of the fistula. In such a case, however, the removal of fluid as indicated to keep the pleural space as dry as possible not only will permit the lung to reexpand faster, but may also help in preventing empyema. Mixed infection empyema sometimes occurs in such cases when organisms admitted to the lung through the bronchi enter the pleural space through the fistula. Rarely is infection produced by careful aspiration of the fluid. There is no harm in introducing penicillin after each aspiration, and it may serve to destroy organisms which might otherwise result in a mixed infection empyema.

Although streptomycin has been administered in a limited number of cases of tuberculous pleurisy with effusion, it is probably better to refrain from its use in the case described. At best it has only a bacteriostatic effect. Moreover, there is strong likelihood that during the course of streptomycin therapy a preponderance of resistant tubercle bacilli would be found. Resistance to streptomycin apparently is passed on to the descendants of tubercle bacilli, and therefore if later a more serious condition should develop, such as meningitis or miliary disease, streptomycin would probably be of little avail, whereas it is usually of considerable help in suppressing such disease in persons who have not previously had a course of this drug. It is generally agreed that in tuberculous lesions anywhere in the body which usually respond well to other forms of treatment, streptomycin should not be administered.

It should be held in reserve for those conditions which do not respond well to other methods of treatment.

In all probability the right lung in the region of the middle lobe did not become adherent to the chest wall within a week after the pain appeared. It is more likely that involvement of the pleura had been present for some time. Whether the bronchopleural fistula occurred at or near the site of the pleural adhesions might be determined by thoracoscopic inspection. However, there is no point in doing this unless the fistula should remain open and surgical closure be indicated later.

Unless the fluid and air were under considerable positive pressure they probably did not cause rupture of an adhesion resulting in the fistula. It is more likely that this was due to subjacent disease extending through the pleura.

UNILATERAL MYDRIASIS

To the Editor:—**A 7 year old Negro boy noted dilatation of the right pupil on arising four days prior to examination. Systemic disease is not evident. The fundus appears normal except for a hyperemic macula area. History of head injury or headaches is absent. As far as the eye is concerned, the patient is asymptomatic. Please suggest causation and treatment.**

J. E. Calloway, M.D., Louisville, Miss.

ANSWER.—Unilateral mydriasis, in general, may be due to a lesion of the intraocular muscles, an irritative lesion of the sympathetic nerves or an interruption of the third nerve at the Edinger-Westphal nucleus, the nerve trunk itself or the ciliary ganglion.

Direct injury to the eye may cause dilatation of the pupil and loss of response to light and accommodation—convergence. The pupil usually remains dilated for only a few days, but occasionally may remain dilated permanently. Irritative lesions of the sympathetic nerve, known to cause unilateral pupillary dilatation, are pulmonary tuberculosis of the apex, tuberculosis of a cervical lymph node, bronchiectasis, gangrene of the lung and pneumothorax.

The third nerve nucleus or trunk may be involved in juvenile paresis, temporal lobe tumors, tumors of the pineal gland, subarachnoid or subdural hemorrhages or rupture of middle meningeal artery and following mumps, meningitis, diphtheria and anterior poliomyelitis.

Mydriasis with paralysis of accommodation is caused by atropine, homatropine, scopolamine and to a partial degree by eucatropine hydrochloride. Mydriasis without involvement of accommodation is caused by epinephrine and its derivatives and cocaine and its derivatives.

Congenital mydriasis is infrequently seen, as in hysteria, with associated amaurosis or amblyopia. Dilatation may occur as an associated reaction when strong attempts are made toward voluntary movements of the eye in any direction or attempt is made to diverge. It has been described in schizophrenia. The tonic pupil of Adie is characterized by unilateral dilatation, slow reaction to light and absent tendon reflexes.

Once it is determined whether the lesion is in the intraocular musculature, the parasympathetic or sympathetic nerves, the diagnosis is simplified. Usually a local lesion is associated with other signs of disease or injury of the eye. There is a prompt consensual pupillary reaction, accommodation may or may not be affected and the pupillary reaction to drugs is inconstant. Dilatation due to sympathetic irritation is characterized by response of the pupil to light directly and consensually, normal accommodation and normal response to physostigmine salicylate. Third nerve involvement is characterized by loss of accommodative power, frequently loss of the direct and consensual pupillary reaction and decreased or absent miosis following treatment with physostigmine salicylate. Treatment must be directed toward removal of the cause.

APOMORPHINE SOLUTIONS

To the Editor:—**Is apomorphine hydrochloride in sterile water or isotonic sodium chloride solution a stable preparation? If not, what solvent may be used for a stable hypodermic solution?**

C. C. Horton, M.D., Pendleton, S. C.

ANSWER.—Aqueous or alcoholic solutions of apomorphine hydrochloride are unstable, gradually acquire a green color, and lack therapeutic properties. The addition of 0.05 per cent sodium bisulfite may be useful as a preservative.

Solutions containing the methyl bromide derivative euporphin® (apomorphine methyl bromide) have been reported to be more stable than the salts of apomorphine. A clear solution containing apomorphine, ascorbic acid and mannitol has been reported (*Chem. Abstr.* **41**:1809, 1947) which does not undergo color change.

TEST FOR UROBILINOGEN

To the Editor:—**What are the reagents and the technical procedure in performing the Wallace-Diamond urobilinogen test on the urine?**

M.D., North Carolina.

ANSWER.—Prepare the reagent by dissolving 2 Gm. of paradimethylaminobenzaldehyde, preferably Eastman's, in 100 cc. of 20 per cent (by volume) hydrochloric acid (20 cc. conc. HCl + distilled H_2O ad 100 cc.).

Urine for test should be fresh. After standing, especially in light, urobilinogen is fairly rapidly changed to urobilin. Bile pigment, if present, should be removed by adding 1 part of 10 per cent aqueous solution of calcium chloride to 4 parts of urine and filtering or centrifuging, or by adding a small amount of calcium chloride crystals instead of the solution, followed by filtration or centrifugation.

To 10 cc. bilirubin-free undiluted urine at room temperature add 1 cc. Ehrlich's reagent and allow to stand three to five minutes. If a deep cherry red color appears proceed with diluted urines. Normal urines produce a moderately deep red color.

Prepare serial dilutions of urine, 10 cc. of each, of 1/10, 1/20, 1/40, etc., with distilled water or tap water. Add to each tube 1 cc. of the reagent and allow color to develop for three to five minutes. Look down tube through the column of liquid against a white background, preferably by daylight. The result is expressed in terms of the highest dilution which shows a faint pink color. Most normal urines show color at one-tenth and in the afternoon, especially, some show color at one-twentieth dilution.

Watson's method may be used also and is more strictly quantitative.

PROSTATIC CANCER AT AGE SEVENTY

To the Editor:—**What is to be preferred in cancer of the prostate in a man of 70 plus? Should he be treated only with diethylstilbestrol or estynil® (ethinyl estradiol), or is orchiectomy advisable, and when? What is intracapsular orchiectomy, and does it give longer life than complete castration? Should the prostate be removed and by what method?**

J. W. Hopkins, M.D., Glendale, Calif.

ANSWER.—Carcinoma of the prostate gland in a patient 70 years of age is generally a slowly growing tumor, and the most conservative treatment that is effective is indicated. Estrogenic substance is a treatment of choice and administration of it should not be delayed when the diagnosis of carcinoma is established. Tolerance to the estrogens is variable and the dosage must be adjusted as indicated. Orchiectomy is reserved for patients wholly intolerant of estrogens and for those patients in whom the effectiveness of the estrogens has been dissipated. Intracapsular orchiectomy does not have advantage over castration. Although endocrine secretion has not been definitely ascribed to the epididymis, excision of the testicle and epididymis will preclude any possibility of androgen stimulation of the carcinoma by these organs. Androgenic substances of adrenal origin must be neutralized with estrogens. In a man 70 years of age with carcinoma of the prostate, transurethral resection of obstructing prostatic tissue is the only type of prostatic surgery indicated. It is only the small, early nodule of prostatic cancer that is amenable to radical perineal prostatectomy and then only in a younger age group.

INDUSTRIAL CARBON TETRACHLORIDE HAZARD

To the Editor:—**A young veteran who has gone into the dry cleaning business becomes violently ill every time he inhales the fumes of carbon tetrachloride. He even becomes nauseated at the thought of it. Is there any type of mask that will filter out these fumes?** **M.D., New Jersey.**

ANSWER.—Dangers from carbon tetrachloride are real and, provided the exposure is sufficient, are more substantial than nausea and vomiting. At and somewhat below 50 parts per million the damage is largely on a nonorganic basis. Above that level, and particularly above 100 parts per million, serious organic injury may arise, notably to the liver and kidneys. In the avoidance of possible harm in the dry cleaning industry, reliance for continuous purposes on protective breathing apparatus, including positive pressure respirators, is impractical. The use of such appliances should be limited to special operations such as the cleaning out of sump tanks. Equipment for carbon tetrachloride dry cleaning is readily available that prevents frequent escape of toxic vapors. In fact, closed systems are essential both to the conservation of health and to avoid the uneconomic wastage of the expensive carbon tetrachloride. If the equipment ostensibly of the closed system type still emits some vapors that may not be avoided, local exhaust devices should be installed to remove such vapors.

In the present instance the practical need is to have the state's Bureau of Industrial Hygiene carry out suitable determinations of the carbon tetrachloride in the atmosphere and to determine the source of such intoxicant. Remedial steps should seek to maintain atmospheric levels at or below 25 parts per million and certainly not higher than 50 parts per million. In the possibility of high individual susceptibility, this present dry cleaner may find it expedient to substitute for the chlorinated detergents such as carbon tetrachloride, one of the recognized petroleum derivatives. More dry cleaning is carried out with naphtha types of dry cleaners than with carbon tetrachloride. However, naphtha dry cleaners are not entirely without their own hazards and in addition are subject to fires. While the wearing of respirators in this operation is not encouraged, suitable information may be obtained from many manufacturers, including the Mine Safety Appliances Company, Pittsburgh.

ALCOHOL INTOLERANCE

To the Editor:—**A 49 year old man weighing 190 pounds (86.2 Kg.), in good health, states that for the last year he can no longer take alcohol without becoming dizzy and perspiring. He also becomes more talkative and inebriated. Up to a year ago he could take as much as 26 ounces of alcohol over a period of a few hours without feeling intoxicated. Then after a meal he was again normal. Now he dreads the effect of 2 ounces of alcohol and the effect lasts for much longer periods of time. The kind of beverage he takes does not change results. He has been taking alcohol in large amounts for the last twenty-five years, on some weekends or holidays. Is there a pathologic explanation for my patient's becoming so intolerant and in so short a time? What do you suggest to improve his tolerance?** **La Salle Mondor, M.D., Grand'Mere, Quebec, Canada.**

ANSWER.—The original high tolerance for alcohol may actually have been a symptom of brain damage. The Report of the Advisory Committee of the Central Control Board (Liquor Traffic), appearing in "A Review of The Effects of Alcohol on Man, London, Victor Gollancz, Ltd., 1931 (p. 64) states: "From the point of view of general health the acquisition of tolerance really implies the removal of a protective mechanism—it allows the drinker to use the drug in doses which he could not have taken if his brain cells had retained their normal power of reacting to it." "These facts suggest that the acquirement of tolerance or, as Hansen terms it, of 'Functional habituation' by the nerve cells is a pathologic change and represents the first stage of chronic alcoholic poisoning."

The sudden loss of tolerance with the acquisition of extreme susceptibility occurs in persons who are on the verge of one of the diseases of alcoholism such as the polyneurotic Korsacow pattern or delirium tremens. The patient is indeed fortunate to have acquired the dislike for alcohol, and he certainly should not be encouraged to increase his tolerance. Lucky is the man for whom the bell tinkles before it tolls.

CHRONIC MULTIPLE SCLEROSIS

To the Editor:—**A patient with chronic multiple sclerosis has been taking liver and B-complex injections for years. The disease has been progressing slowly but steadily during this period. I understand that there has occurred an "associated low grade anemia" but not of the pernicious anemia type. 1. Is there value in the continued use of liver and B-complex injections? 2. Will iron or molybdenized iron do as much for the patient's blood picture? 3. Do any of the following have any effect on ameliorating the disease: (a) tetraethyl ammonium chloride, (b) ephynal acetate® (d,l-alpha tocopheral acetate), (c) vitamin B-12 (reported in connection with the neurologic phase of pernicious anemia), (d) a combination of liver, folic acid and stomach extract or (e) injections of fibrolysin? 4. Are there any other agents which will aid in either the disease or the comfort of the patient?** **Lester J. Candela, M.D., New York.**

ANSWER.—Liver and B-complex injections in patients with multiple sclerosis have been widely used in the past, without resulting in any specific type of improvement in most patients. The feeling, however, that patients are "better" under this form of treatment is recognized by many. Relapses are frequently less severe than might be expected and some "resistance" develops, often vague but nevertheless discernible by competent observers. To many physicians, patients with multiple sclerosis show less severe symptoms than those seen twenty years ago before the use of liver or vitamin therapy was instituted. Such a point of view is not consistent with the views of some, but many neurologists are impressed with the value of vitamins, although less so with the importance of liver.

In patients with anemia, there is always the possibility that the symptoms are due to combined system disease and not to multiple sclerosis. The clinical signs are frequently similar enough to be confusing, but a first-zone colloidal gold reaction in the cerebrospinal fluid should never be found in combined system disease. Iron and liver, vitamin B_{12}, folic acid or stomach extract are indicated in the anemias with neurologic complications, but their value, if any, in multiple sclerosis awaits confirmation. Rest periods, appropriate exercises, warm climate, adequate diet, freedom from infection, a full vitamin intake, fully absorbed, and psychotherapy are the best forms of treatment for patients with multiple sclerosis at the present time.

LICHEN PLANUS

To the Editor:—**Please furnish information relative to recent advancements in therapy of lichen planus.** **M.D., Wisconsin.**

ANSWER.—Therapy of lichen planus has not been greatly advanced. Recently, the use of sodium bismuth triglycollamate has been advocated, one tablet being given four times a day by mouth until relief is obtained or for a period of several months. According to the pharmaceutical house putting out this tablet under the trade name bistrimate,® one tablet contains 410 mg. of the drug, equivalent to 75 mg. of bismuth. Bismuth has been given in the past in the form of intramuscular injections of various bismuth salts and also in the form of bismuth arsphenamine sulfonate. Mercury in the form of protiodide, grain 1/6 (about 0.01 Gm.) three times daily by mouth, has also been recommended. Better results from the use of mercury followed the intramuscular injection of 1 per cent mercury bichloride in isotonic sodium chloride solution, the dosage varying from ⅛ to ¼ grain (about 0.008 to 0.016 Gm.) every second day. Twelve to twenty injections suffice when the treatment is effective. There are a great many other forms of therapy for lichen planus, including filtered roentgen irradiation to the paravertebral regions. No one type of treatment is successful, and in many cases lichen planus proves resistant to multiple types of treatment.

STREPTOTHRIX CASTS IN TEAR DUCT

To the Editor:—**A young woman, aged 30, has had blockage of the right tear duct for several years. This condition gradually gets worse and then improves with the expulsion of a cast from the right tear duct. The cast is composed of Streptothrix organism. As gross concretion in the canaliculus is absent, surgery has not been performed. Have you suggestions for preventing the formation of these casts?** **M.D., California.**

ANSWER.—Streptothrix organisms usually form concretions in the lower canaliculus causing pronounced dilatation of this structure. Prompt cure is ordinarily obtained by expressing the concretions on two or three occasions. Lugol's solution (strong iodine solution U. S. P.) can be instilled into the punctum. Obstruction of the nasolacrimal duct by this organism is unusual and as a rule requires extirpation of the lacrimal sac or dacryocystorhinostomy.

OTITIS EXTERNA

To the Editor:—**Please give a résumé of causation, diagnosis and treatment of otitis externa. Is swimming sometimes forbidden as a preventive measure? Does the wearing of ear plugs help?** **M.D., New York.**

ANSWER.—Otitis externa is frequently due to a fungus. Aspergillus is often an offender. Bacillus pyocyaneus or Staphylococcus aureus may be responsible.

For the Aspergillus, cleanliness and use of cresatin or methylosainline chloride are recommended. For the B. pyocyaneus, dibromosalicylaldelyde in a 1 per cent solution is effective. For the Staph. aureus, 5 per cent sodium sulfathiazole is the treatment of choice. Moisture in the ear usually precedes the infection; most of these cases date from swimming in the summer. Lamb's wool smeared with petrolatum to make a tight ear plug is useful for protection.

TEST FOR PHEOCHROMOCYTOMA

To the Editor:—**It has recently come to my attention that tetraethyl ammonium chloride may be of some value in the diagnosis of pheochromocytomas of the adrenal gland. This drug normally produces a fall in blood pressure when administered to a person having normal blood pressure or one having hypertension from causes other than adrenal tumors; whereas, when it is administered to a person having a pheochromocytoma, an immediate rise in pressure with accompanying symptoms will occur. Can this drug be used for that purpose? What is the suggested dosage?** **L. C. Bailes, M.D., Anderson, S. C.**

ANSWER.—Tetraethylammonium chloride has been utilized in making diagnosis of pheochromocytoma. The phenomena described in the question occur when pheochromocytoma is present. The total dosage for this diagnostic purpose is 300 mg.